3501-1 LANGUAGE OPTION 1, ENGLISH			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
200	HN50C	1	BASEPLATE, 3500
201	L2026	1	OVERLAY/MEMBRANE KEYPAD, 3500

3501-2 LANGUAGE OPTION 2, GERMAN			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
200	HN50CG	1	BASEPLATE, GERMAN, 3500
201	L2026G	1	OVERLAY/MEMBRN. KEYPAD, GERMAN, 3500

3502-1 VOLTAGE OPTION 1, 110V			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
205	AS18	1	ASSY., LINE CORD, 110V, TESTED
206	FU13	2	FUSE, 3/4 AMP, SLO-BLO, 313.750

3502-2 VOLTAGE OPTION 2, 220V EURO./GERMAN			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
205	AS18G	1	ASSY., LINE CORD, 10A/220-230V, EURO.
206	FU25	2	FUSE, 4/10 AMP, 250V, SLO-BLO, 3AG

3502-3 VOLTAGE OPTION 3, 220V UNIVERSAL			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
205	AS18A	1	ASSY., LINE CORD, 220V, TESTED
206	FU25	2	FUSE, 4/10 AMP, 250V, SLO-BLO, 3AG

3503-1 DISPLAY OPTION 1, 10.4" ACTIVE COLOR			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
210	HE50	1	DISPLAY, LCD, COLOR, 10.4" DIAG. ACTIVE
211	AB97	1	PCA, SHARP 321 CBL. ADPTR., (SHARP ONLY)
212	M000	1.4	TAPE, OPN. CL. FM, DS, .05 THK. X .38 WD.
213	AC252	1	CAB, SHARP ACTIVE LCD DISPLAY, 3500
214	AM44	1	PROM SET, VIDEO BIOS, ACTIVE, 3500

3503-2 DISPLAY OPTION 2, 10.4" ELECTROLUMINESCENT			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
210	X	X	X
211	X	X	X
213	X	X	X
214	X	X	X

3503-3 DISPLAY OPTION 3, 10.4" PASSIVE COLOR			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
210	HE58	1	DISPLAY, LCD COLOR, 10.4" DIAG. PASSIVE
211	AB105	1	PCA, SHARP 35PX PASSIVE CBL. ADPTR.
213	AC304	1	CAB, SHARP PASSIVE LCD DISPLAY, 3500
214	AM43	1	PROM SET, VIDEO BIOS, PASSIVE, 3500

3504-1 INVASIVE PRESSURES OPTION 1, DUAL (2)			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
215	AB74	1	PCA, INVASIVE PRESSURES, 3500
216	L2027A	1	LABEL, FRONT PANEL, I.S., 2P, 3500
216	L2027C	1	LABEL, FRONT PANEL, I.S., 2P, C.O, 3500

3504-2 INVASIVE PRESSURES OPTION 2, QUAD (4)			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
215	AB74	2	PCA, INVASIVE PRESSURES, 3500
216	L2027B	1	LABEL, FRONT PANEL, I.S., 4P, 3500
216	L2027D	1	LABEL, FRONT PANEL, I.S., 4P, C.O, 3500

3505-1 ETCO2 OPTION 1, ETCO2			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
220	AS191	1	ASSY, ETCO2 PNEUMATICS CONTROLLER
221	L2027F	1	LABEL, FRONT PANEL, ETCO2, 3500
222	HP86A	1	LUER LOCK, MALE, MALE THD., #1/4-28
223	AC290	1	CABLE, POWER SUPPLY/ETCO2, 3500
224	HP87A	1	LUER LOCK, FEM., FEM. THD., #1/4-28
225	ED01	1	NAFION TUBE, ME DRYER
226	AP82	1	CHECK VALVE, CO2 OPTION
227	NW26	1	LOKWASHER, INT. TOOTH, #1/4 SS

3508-1 ENHANCED ECG OPTION 1, DUAL LEAD ECG			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
X	X	X	X

3509-1 RESP. OPTION 1, RESP. (IMPEDANCE PNEUMOGRAPHY)			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
X	X	X	X

3512-1 RECORDER OPTION 1, DUAL CHANNEL RECORDER			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
250	HT16	1	RECORDER, THERMAL, GEN. SCANG. AR42
251	MP05	1	PAPER, THERM. ARRAY, BLACK, 50mm
252	L2036	1	LABEL, PRINTER DOOR (GEN. SCANG.)

3519-1 SOFTWARE OPTION 1, ST SEGMENT			
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
X	X	X	X

REF. ASSEMBLY INSTRUCTION AI038

REF. INTERCONNECT DIAGRAM C90D047

REV.	DESCRIPTION	BY	DATE
D	PER ECN # 5264	RLM	13-SEP-96
C	PER ECN # 5150	RLM	5/1/96
B	PER ECN #5080	SR	4/11/96
A	RELEASED, ECN #5022	SR	5/1/96

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DRAWN SR 1/1/96 | DESIGNED | CHECKED | APPROVED

THIRD ANGLE PROJECTION

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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR

CAD SCALE	SHEET	DWG. NO.	REV
.75 : 1	1 of 10	197C497	D

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
265			
264			
263			
262			
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257			
256			
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253			
252	SEE CHART	—	LABEL, PRINTER DOOR, (GEN. SCANG.)
251	SEE CHART	—	PAPER, THERM. ARRAY, BLACK, 50mm
250	SEE CHART	—	RECORDER, THERMAL, GEN. SCANG. AR42
249			
248	SEE CHART	—	COVER, RECORDER, 3500
247	SEE CHART	—	SCR, #4-40 X 1/4 LG, PHMS-XR, ZN
246			
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227	SEE CHART	—	LOKWASHER, INT. TOOTH, #1/4 SS
226	SEE CHART	—	CHECK VALVE, CO2 OPTION
225	SEE CHART	—	NAFION TUBE, ME DRYER
224	SEE CHART	—	LUER LOCK, FEM., FEM. THD., #1/4-28
223	SEE CHART	—	CABLE, POWER SUPPLY/ETCO2, 3500
222	SEE CHART	—	LUER LOCK, MALE, MALE THD, #1/4-28
221	SEE CHART	—	LABEL, FRONT PANEL, ETCO2, 3500
220	SEE CHART	—	ASSY, ETCO2 PNEUMATICS CONTROLLER
219			
218			
217			
216	SEE CHART	—	LABEL, FRONT PANEL
215	SEE CHART	—	PCA, INVASIVE PRESSURES, 3500
214	SEE CHART	—	PROM SET, VIDEO BIOS, 3500
213	SEE CHART	—	CAB., LCD DISPLAY, 3500
212	SEE CHART	—	TAPE, OPN. CL FM, DS, .06 THK. X .38 WD.
211	SEE CHART	—	PCA, LCD CABLE ADAPTER
210	SEE CHART	—	DISPLAY, LCD, COLOR
209			
208			
207			
206	SEE CHART	—	FUSE
205	SEE CHART	—	ASSY., LINE CORD
204			
202			
202			
201	SEE CHART	—	OVERLAY/MEMBRANE KEYPAD, 3500
200	SEE CHART	—	BASEPLATE, 3500

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
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154			
153			
152	M147	REF	EPOXY, CONDUCTIVE, SILVER
151	M006A	REF	ADHESIVE/SEALANT, RTV, CLEAR, 732
150	M020	REF	ADHESIVE, LOCTITE, TOUGHENED, 411
149			
148			
147			
146			
145			
144			
143			
142	9536	1	MANUAL, OPERATOR'S, MILLENNIA
141	9373	1	SENSOR, FINGER, OXI-CLIP II, 10'
140	9206	1	SNAP, 2', B/W/R/B/G, UNSHD, SAFETY
139	9204	1	CAB, ECG, 5 LD, UNSHLD, SAFETY
138	9070E	1	OMEGA, CUFF, ADULT, THREAD FTG
137	9010N	1	HOSE SINGLE LUMEN, NEO
136	9010E	1	HOSE, ADULT, PATIENT, THREAD FTG
135	AN08V	1	CUFF, DISP, SIZE A,B,C, OM 1400

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
135			
134	M147	A/R	EPOXY, CONDUCTIVE, SILVER
133	M004	5.0"	TAPE, ACRYLIC, DS, .010 THK X .50 WD.
132	WT13	1.0"	HEAT SHRINK, BLACK, 1" I.D.
131			
130	HM50AJ	1	INSULATOR, MOTHERBOARD PCA, 3500
129	H091	.07	SHIELDING STRIP, RFI, REV. BEND
128	H093	.23	SHIELDING STRIP, RFI, CYL. RAD.
127	HM50AE	1	COVER, RECORDER, 3500
126	FE06	1	BUMPER, PROTECTIVE, BLK, .50W X .23H
125	H140	1	INSULATOR, 2.70 X 3.25 - 3500
124	HP68-6	1	ASSY., TUBING, 17.50", CO2
123	HP68-5	1	ASSY., TUBING, 15.50", CO2
122	NW08	1	LOCKWASHER, INT. TOOTH, #8 SS
121	WT05	1.0"	HEAT SHRINK 3/16" I.D. BLACK
120	T038	1	CORE, TOROIDAL, FERRITE
119	S030	1	ENCODER, OPTICAL, 16 POS., PUSHBUTTON
118	S016	2	SWITCH, ROCKER, DPST
117	N003	1	NUT, HEX, #8-32, ZN
116	PA111A	2	INSULATING WASHER, GRAY
115	N006	2	NUT, HEX, #2-56, ZN
114	N002	6	NUT, HEX, #4-40, ZN
113	L2027E	1	LABEL, FRONT PANEL, R. S. 3500
112	L2027	1	LABEL, FRONT PANEL, L. S. BASIC, 3500
111	NW09	13	LOKWSHR, IT.SS, #4 X .200 X .020
110	NW32	3	FLTW, #8, REG. SERIES - ZN
109	N001	6	NUT, HEX, #6-32, ZN
108	NW33	6	WASHER, NYLON, .120 X .250 X .010
107	NW01	6	LOKWSHR, IT.SS, #6 X .285 X .040
106	NS06	2	SCR, #6-32 X 1/2 LG. PHMS-XR, ZN
105	NS95	1	SCR, SET, #4-40 X 3/16, CP. PT., SS
104	NS93	4	SCR, CAPTIVE, #8-32 X 1/2, SHCS
103	NS98	7	SCR, #4-40 X 1/4 LG. PHMS-XR, ZN
102	NS50	19	SCR, #4-40 X 1/4 LG. PHMS-NY
101	NS05	9	SCR, #8-32 X 5/16 LG. PHMS-XR, ZN
100	L137	1	LABEL, C.E. COMPLIANCE
99	NS10	7	SCR, #6-32 X 3/8 LG. PHMS-XR, ZN
98	NS04	34	SCR, #4-40 X 1/4 LG. PHMS-XR, ZN
97	NS02	35	SCR, #6-32 X 1/8 LG. PHMS-XR, ZN
96	L1016C	1	LABEL, MODEL/SERIAL, OMEGA SERIES
95	L014	1	LABEL "ACCEPTED" W02
94	IC98	1	IC, 168P,-PGA, 486DX2/66MHZ MPRC.
93	HC01	2	CLAMP, 1/4", NX2
92	H086	4	RING, RETAINING, 3500
91	H090	30.5"	GASKET, EMI/EMP, COND. ELASTOMER
90	H088	1	LATCH, SPRING, SLOTTED HEAD
89	H068	1	PLUG, HOLE, 3/8" H.D., BLACK
88	H006	2	SPEAKER CUP 46SC004
87	HS52	7	STANDOFF, HEX, M/F, 4-40 X .360 NY
86	HS51	2	STANDOFF, HEX, M/F, 6-32 X .375
85	HS50	4	STANDOFF, HEX, F/F, 4-40 X .875
84	HS49	3	STANDOFF, HEX, M/F, 4-40 X .500
83	HS55	2	STANDOFF, HEX, M/F, 4-40 X .500 NY
82	HS47	8	STANDOFF, HEX, M/F, 4-40 X .250
81	HS42	6	STANDOFF, HEX, F/F, 4-40 X .500 NY
80	HS56	1	STANDOFF, 3/16 HEX, M/F, 4-40 X .500
79	HS28A	10	SCREWLOCK, FEMALE, .250 LG.
78	HP54	2	FITTING, BLKHD, LUER, FEM, BRASS
77	HP09	9.0"	TUBING, SBR, .250" X .125" X .0625"
76	HM50W	1	DOOR, BATTERY, OMNI-TRAK 3500
75	HM50T	1	COVER, 3500
74	HM50R	1	END CAP, PAINTED, 3500
73	HM50AD	1	SPRING, DOOR, 3500
72	HM50X	1	PIN, HINGE, 3500
71	HM50J3	1	RET. BRKT, P.C. BD, R.S. BTTM, 3500
70	HM50J2	1	RET. BRKT, P.C. BD, L.S. BTTM, 3500
69	HM50J	1	BRKT., SUPPORT, LEFT SIDE, 3500

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
68	HM50H	1	BRKT., SUPPORT, RT. SIDE, 3500
67			
66	HM50E	1	BRKT., BATTERY HOLDER
65	HM50D	1	SELECTOR KNOB (FINGER TURN), 3500
64			
63	HM50B1	1	COND. PAINT, DISPLAY INSERT MOLDING, 3500
62	HM50AT	1	MTG. BRKT, CONN. SENSOR, 3500
61	HM50AR	1	MTG. BRKT, LONG CONN. SENSOR, 3500
60	HM50AP	1	COVER, PCMCIA, OMEGA 3500
59	HM50AN	1	BRKT., STIFFENER, SUPPORT, 3500
58			
56	HM50AK	1	SHIELD, PAT. F.E. BD, OMNI 3500
55	HM50AH	3	CLAMP, BEZEL BTTM, OMNI-TRAK 3500
54	HM50AG	6	CLAMP, BEZEL SIDE, OMNI-TRAK 3500
53	HM50AF	1	MTG. BRKT, PAT. F.E. BD, OMNI 3500
52	HM50AC	3	BATTERY LOCKING BAR, 3500
51	HM50A1	1	COND. PAINT, FRONT PANEL, MOLDING, 3500
50	HH09B	1	VINYL HANDLE & INSERT, FROM HH09
49	HE16	1	BINDING POST, METAL
48	HB10	1	BATTERY, 12V, RECHARGABLE
47	HM50F2	2	NUT, DRESS, #5/16-24, 3500
46	HM50F1	2	NUT, DRESS, #3/8-32, 3500
45			
44	FU18	1	FUSE, 7 AMP, 250V, SLO-BLO, 3AG
43	FU07	1	FUSE POST 342012A
42	FE08	2	FEET, TIP-UP, PLASTIC
41	FE07	2	FOOT, CASE, .82 DIA. X .59 H
40	DB01	1	DIODE BRIDGE, 10 AMP
39			
38	AS137	1	ASSY, SPEAKER, OMNI-TRAK 3500
37	AP35	2	HOSE ADAPTER, "L", OMNI-TRAK
36	AP31	1	PNEUMATICS ASSY, OMNI-TRAK 3500
35	AM48	1	PROM SET, A/D, B, 3500
34	AM47	1	PROM SET, A/D, A, 3500
33	AM46	1	PROM SET, A/D, FLASH, 3500
32	AM45	1	PROM SET, MULTIFUNCTION I/O, 3500
31			
30	AB93	1	PCA, REAR PANEL CONNECTORS
29	AM40	1	PROM SET, KEYBOARD INTERFACE, 3500
28	AC288	1	CAB, RIB, 40P, .025 CTRS, 14" LG
27	AC287	1	CAB, AUX IN/ECG SYNC. OUT, 3500
26	AC271	1	CAB, PATIENT INTRCNT, OMEGA 3500
25	AC292	1	CAB, CONN. SNSR/MULTI-FNCTN I/O, 3500
24	AC269	1	CAB, MOTHER BD. PWR, OMNI 3500
23	AC258	2	CAB, TEMP JACK, OMNI-TRAK 3500
22	AC295	1	CABLE, CRT VIDEO, 3500
21	AC266	1	CAB, KEYBOARD, OMNI-TRAK 3500
20	AC294	1	CABLE, AUX IN/OUT/ECG SYNC, 3500
19	AC263	1	CAB, PWR/DC EXTERNAL IN, 3500
18	AC261	1	CABLE, XENTEK, INVRTR/VGA, 3500
17	AC259	1	CABLE, RIBBON, 30P, .025 CTRS, 15"
16	AC257	1	CABLE, RIBBON, 24P, .025 CTRS, 8"
15	AC256	1	CABLE, RIBBON, 20P, .025 CTRS, 15"
14			
13	AC225	2	CAB, RIBBON, 40P, .025 CTRS, 8"
12	AC113	1	CAB, PWR SUPPLY/AD BD., 3500
11	AB09A	1	PCA, INVERTER, LCD, LS380, XENTEK
10	AB70	1	PCA, MLTI-FNTN, I/O, OMNI-TRAK, 3500
9	AB68	1	PCA, KEYBD. INTRFCE, OMNI-TRAK, 3500
8	AB66	1	PCA, PATIENT F. E., OMNI-TRAK, 3500
7	AB92	1	PCA, CONNECTOR SENSOR, 3500
6	AB88A	1	PCA, PA/AT MOTHERBD, LESS MPRCSR
5	AB77	1	PCA, PCMCIA/VGA DISPLAY, 3500
4	AB72	1	PCA, POWER INTRCNCT, OMEGA 3500
3	AB69A	1	PCA, PWR SWITCHER/BATT CHARGR, 3500
2	AB69	1	PCA, POWER SUPPLY, 3500
1	AB65	1	PCA, A/D, 3500
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:
.XX = ± —
.XXX = ± —
ANGLES = ± —

DRAWN	SR	2/1/94
DESIGNED	[illegible]	2/1/94
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]

INCHES — THIRD ANGLE PROJECTION

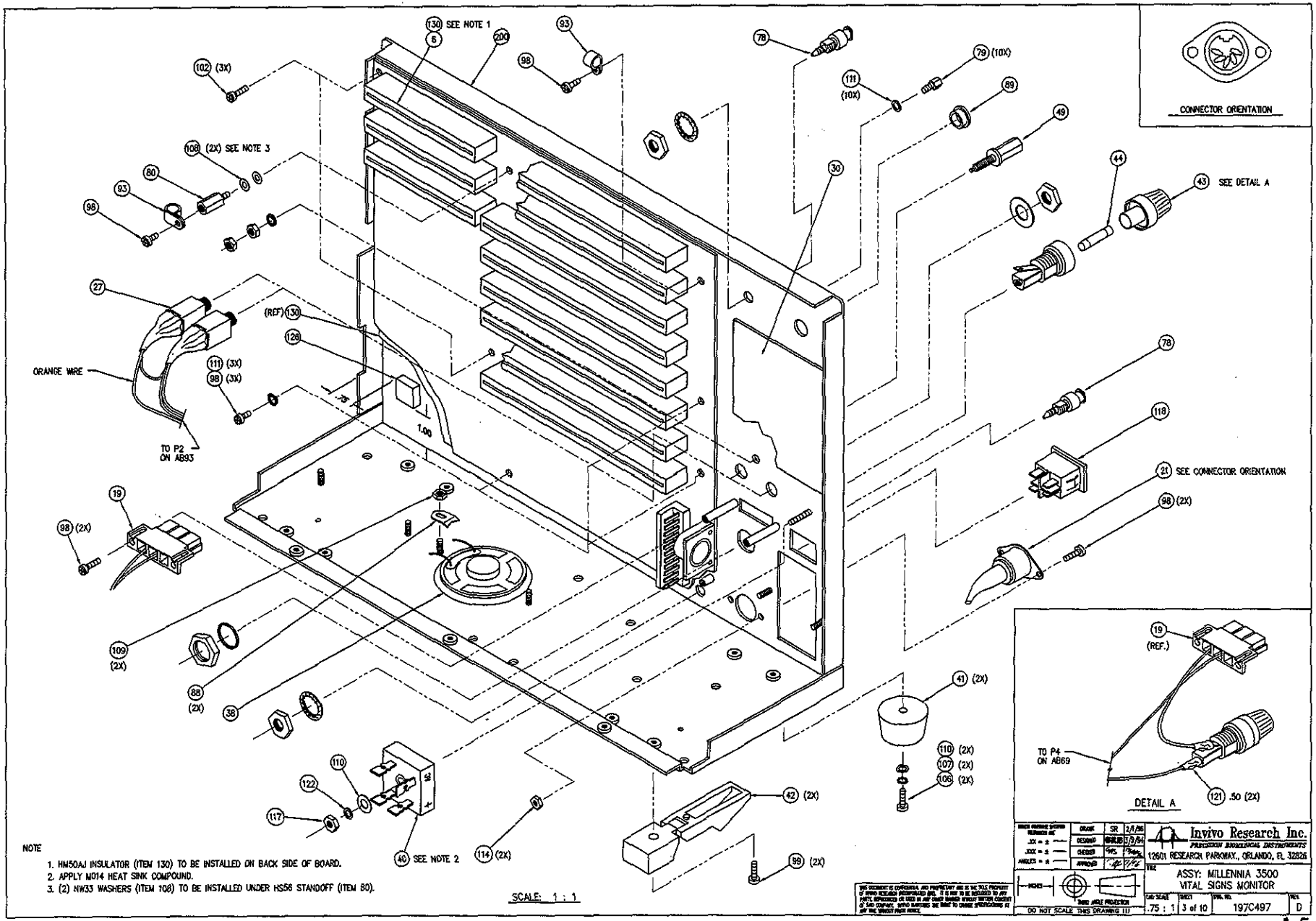
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Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR

CAD SCALE	SHEET	DWG NO.	REV.
.75 : 1	2 of 10	197C497	D



NOTE

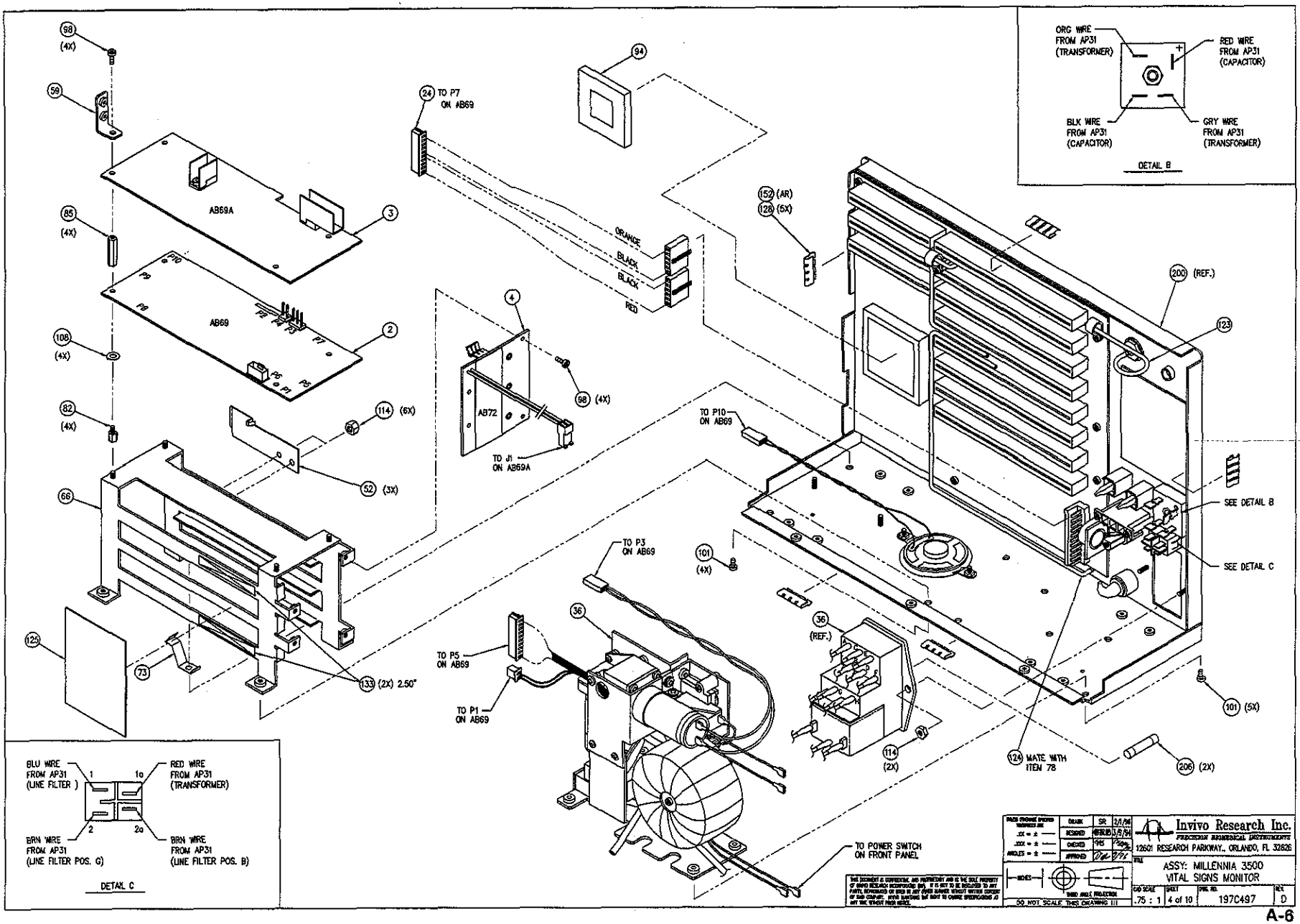
1. HN50AJ INSULATOR (ITEM 130) TO BE INSTALLED ON BACK SIDE OF BOARD.
2. APPLY M014 HEAT SINK COMPOUND.
3. (2) NW33 WASHERS (ITEM 108) TO BE INSTALLED UNDER HS56 STANDOFF (ITEM 80).

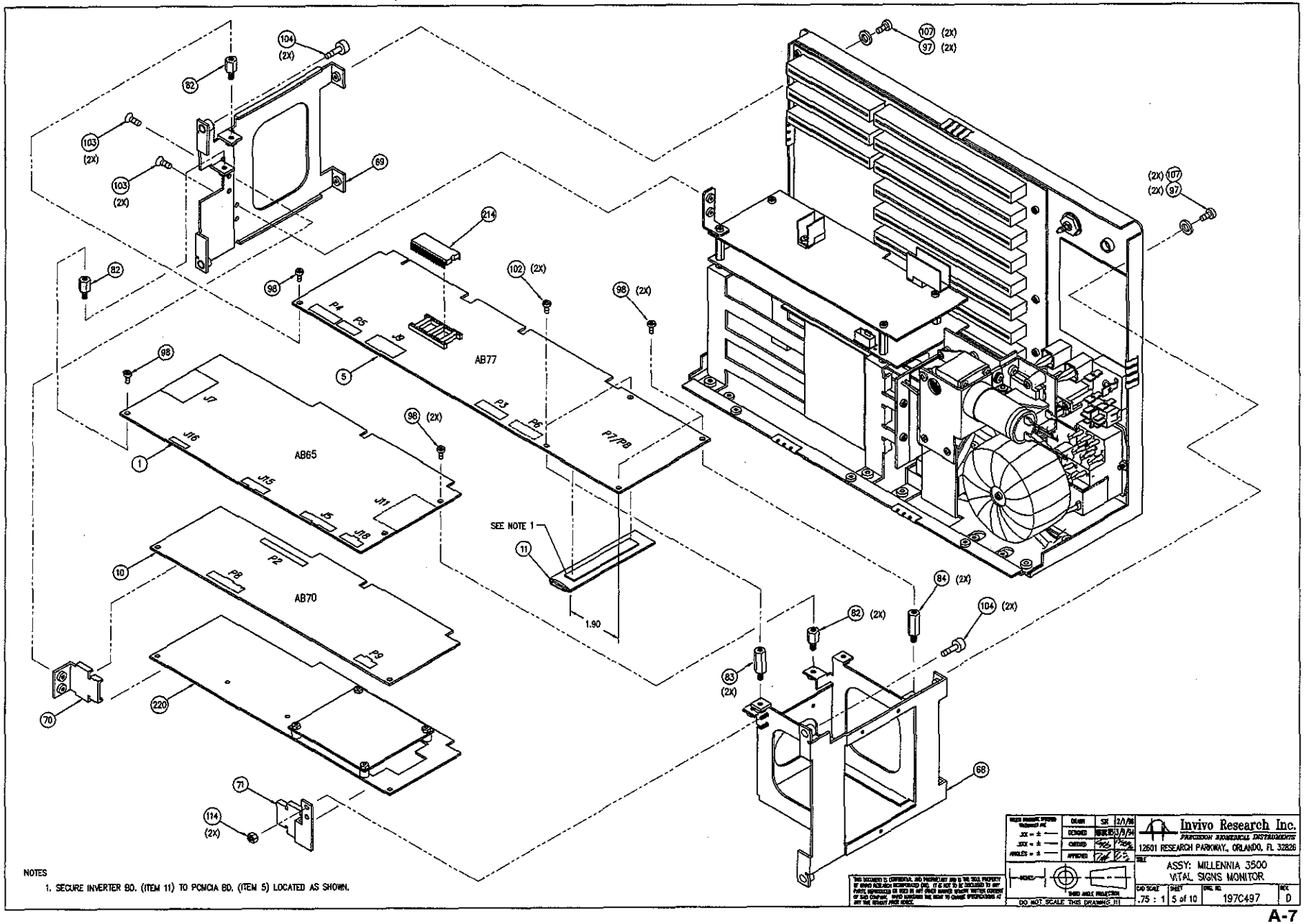
SCALE: 1 : 1

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DRAWN	SR	2/1/96	Invivo Research Inc. PRECISION BIOMECHANICAL INSTRUMENTS
DESIGNED	[illegible]	2/5/96	12601 RESEARCH PARKWAY., ORLANDO, FL 32826
CHECKED	[illegible]	[illegible]	TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR
APPROVED	[illegible]	[illegible]	
THIRD ANGLE PROJECTION	CAD SCALE: .75 : 1	SHEET: 3 of 10	DWG. NO.: 197C497 REV.: D

DO NOT SCALE THIS DRAWING !!!


ORG WIRE FROM AP31 (TRANSFORMER)
RED WIRE FROM AP31 (CAPACITOR)
BLK WIRE FROM AP31 (CAPACITOR)
GRY WIRE FROM AP31 (TRANSFORMER)
DETAIL B
AB69A
AB69
AB72
ORANGE
BLACK
BLACK
RED
TO P7 ON AB69
TO P10 ON AB69
TO P3 ON AB69
TO P5 ON AB69
TO P1 ON AB69
TO J1 ON AB69A
SEE DETAIL B
SEE DETAIL C
MATE WITH ITEM 78
TO POWER SWITCH ON FRONT PANEL
BLU WIRE FROM AP31 (LINE FILTER)
RED WIRE FROM AP31 (TRANSFORMER)
BRN WIRE FROM AP31 (LINE FILTER POS. C)
BRN WIRE FROM AP31 (LINE FILTER POS. B)
DETAIL C
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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826
ASSY: MILLENNIA 3500
VITAL SIGNS MONITOR
.75 : 1
4 of 10
197C497
D



NOTES

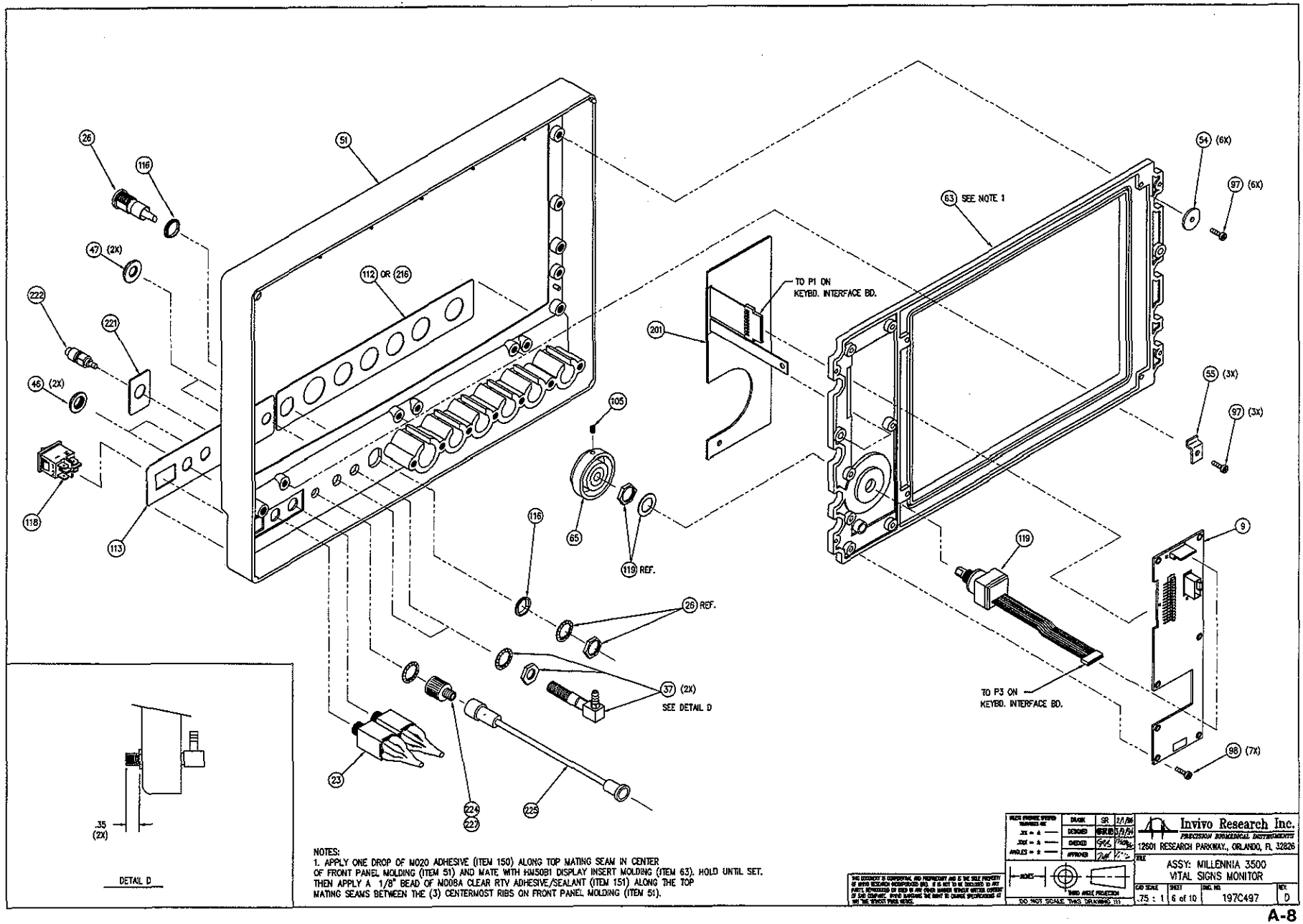
1. SECURE INVERTER BD. (ITEM 11) TO PCMCIA BD. (ITEM 5) LOCATED AS SHOWN.

DRAWN	SR	2/1/96	Invivo Research Inc. PRECISION BIOMEDICAL INSTRUMENTS
DESIGNED			12601 RESEARCH PARKWAY, ORLANDO, FL 32826
CHECKED			TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR
APPROVED			CAD SCALE: .75 : 1 | SHEET: 5 of 10 | DWG. NO.: 197C497 | REV: D

THIRD ANGLE PROJECTION

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NOTES:
1. APPLY ONE DROP OF M020 ADHESIVE (ITEM 150) ALONG TOP MATING SEAM IN CENTER OF FRONT PANEL MOLDING (ITEM 51) AND MATE WITH HM508I DISPLAY INSERT MOLDING (ITEM 63). HOLD UNTIL SET. THEN APPLY A 1/8" BEAD OF M008A CLEAR RTV ADHESIVE/SEALANT (ITEM 151) ALONG THE TOP MATING SEAMS BETWEEN THE (3) CENTERMOST RIBS ON FRONT PANEL MOLDING (ITEM 51).

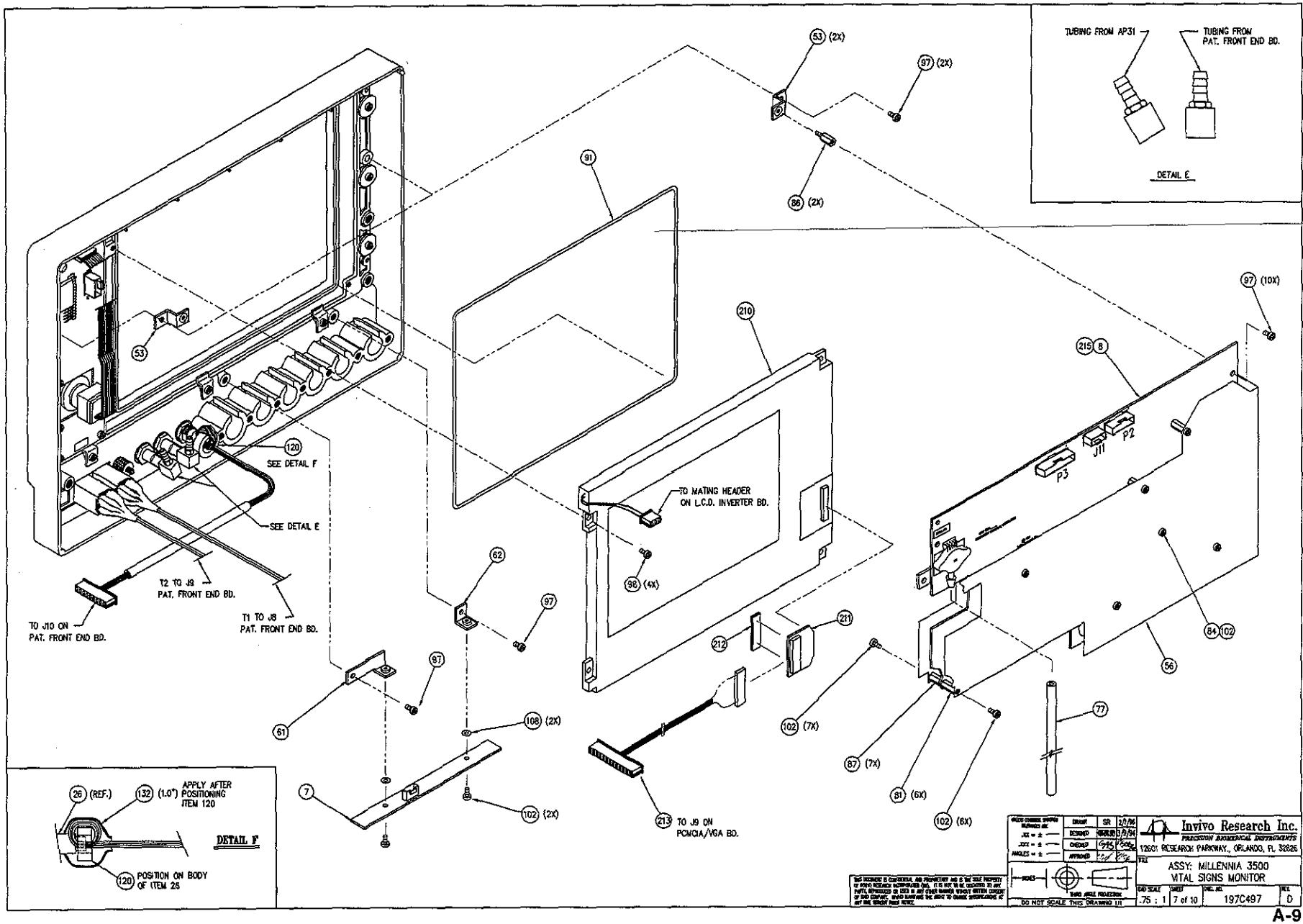
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XX = ±	DESIGNED	[illegible]	11/96
XXX = ±	CHECKED	[illegible]	[illegible]
ANGLES = ±	APPROVED	[illegible]	[illegible]
BREAK	THIRD ANGLE PROJECTION		
DO NOT SCALE THIS DRAWING !!!			

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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR

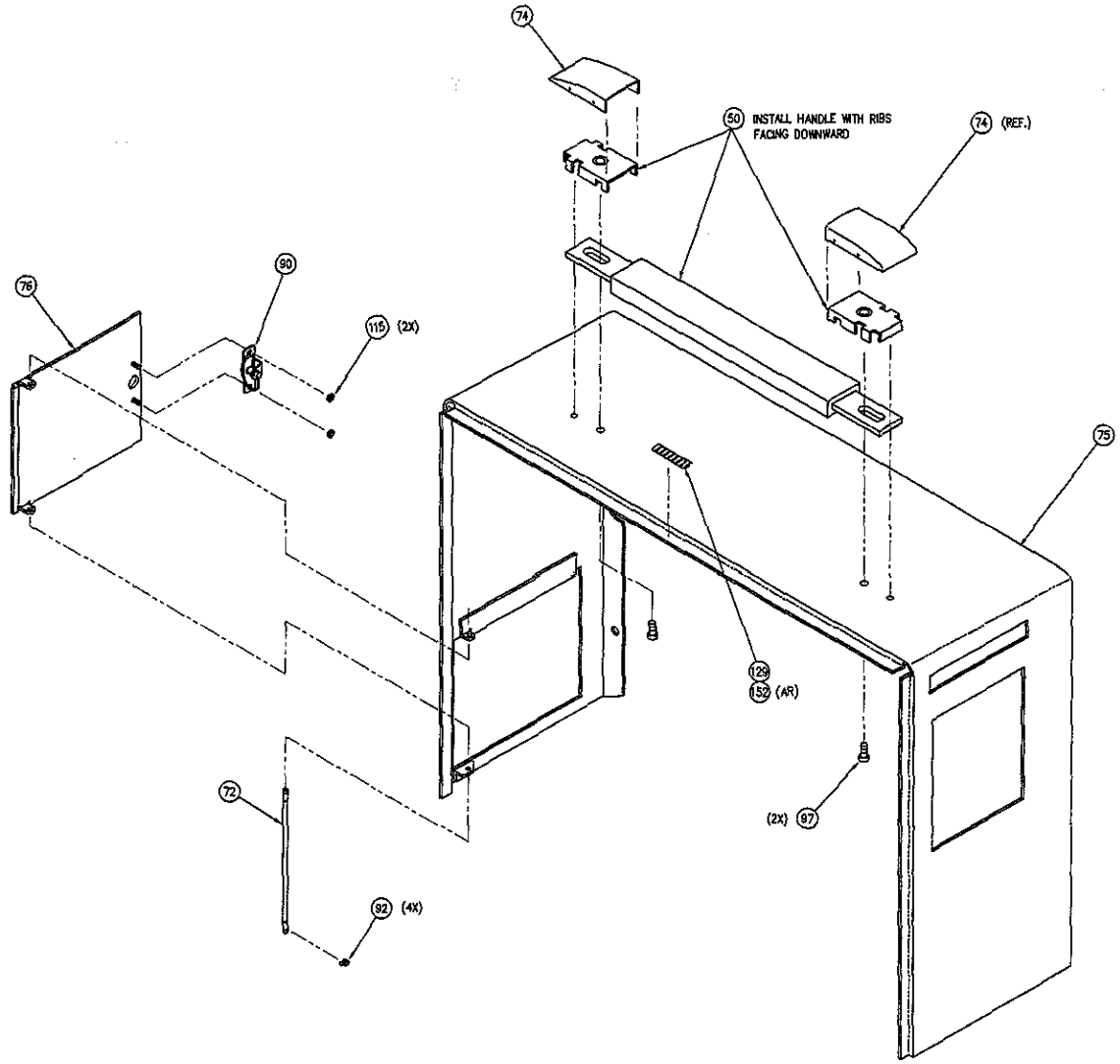
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.75 : 1	6 of 10	197C497	D



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DESIGNED		2/8/96	
CHECKED			
APPROVED			
			ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR
.75 : 1	7 of 10	197C497	D

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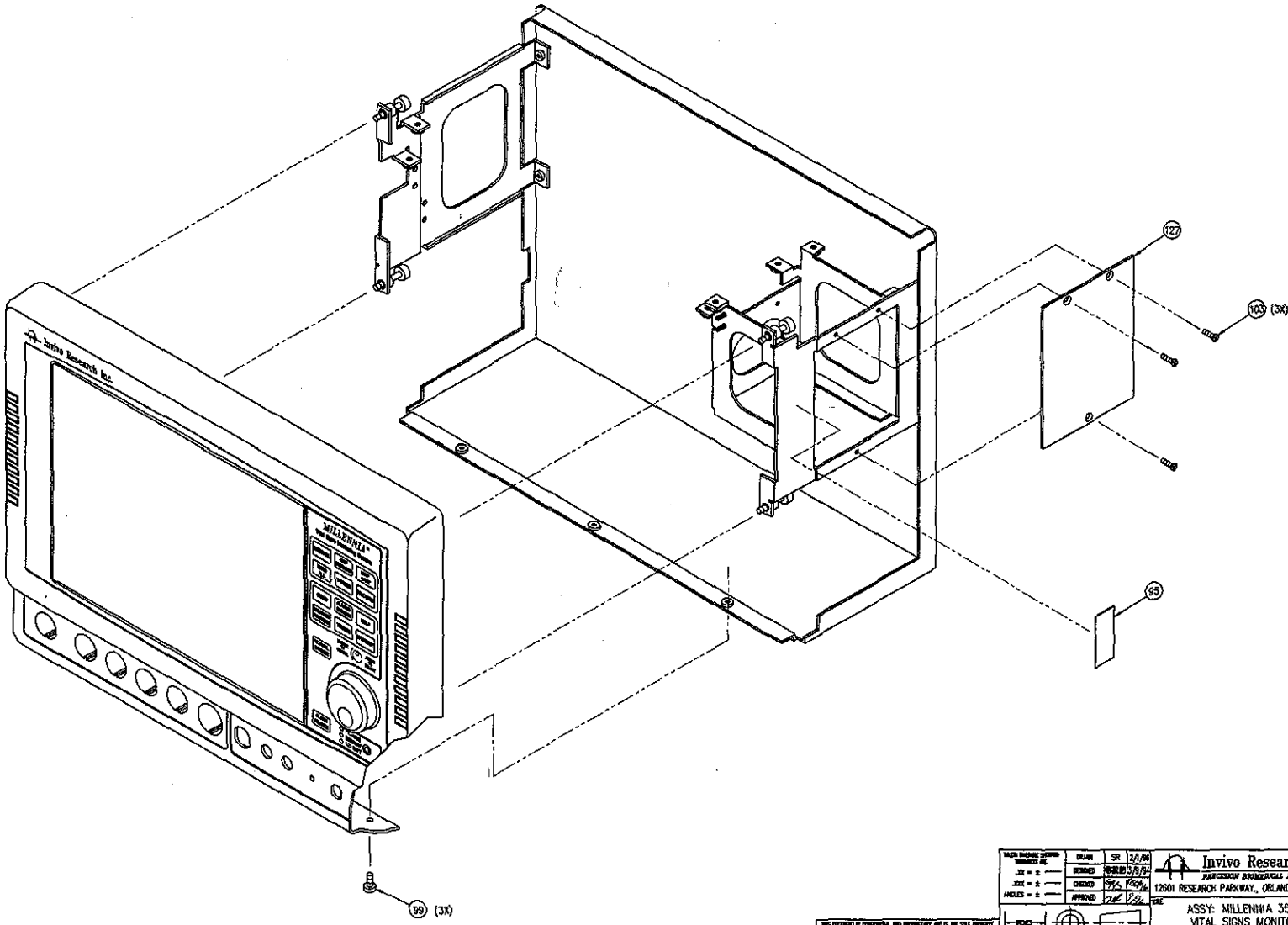
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DRAWN	SR	2/1/96	Invivo Research Inc. PRECISION BIOMEDICAL INSTRUMENTS
CHECKED			12601 RESEARCH PARKWAY, ORLANDO, FL 32826
APPROVED			ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR
			SIZE: D · SCALE: .75 : 1 · SHEET: 8 of 10 · DWG NO: 197C497 · REV: D

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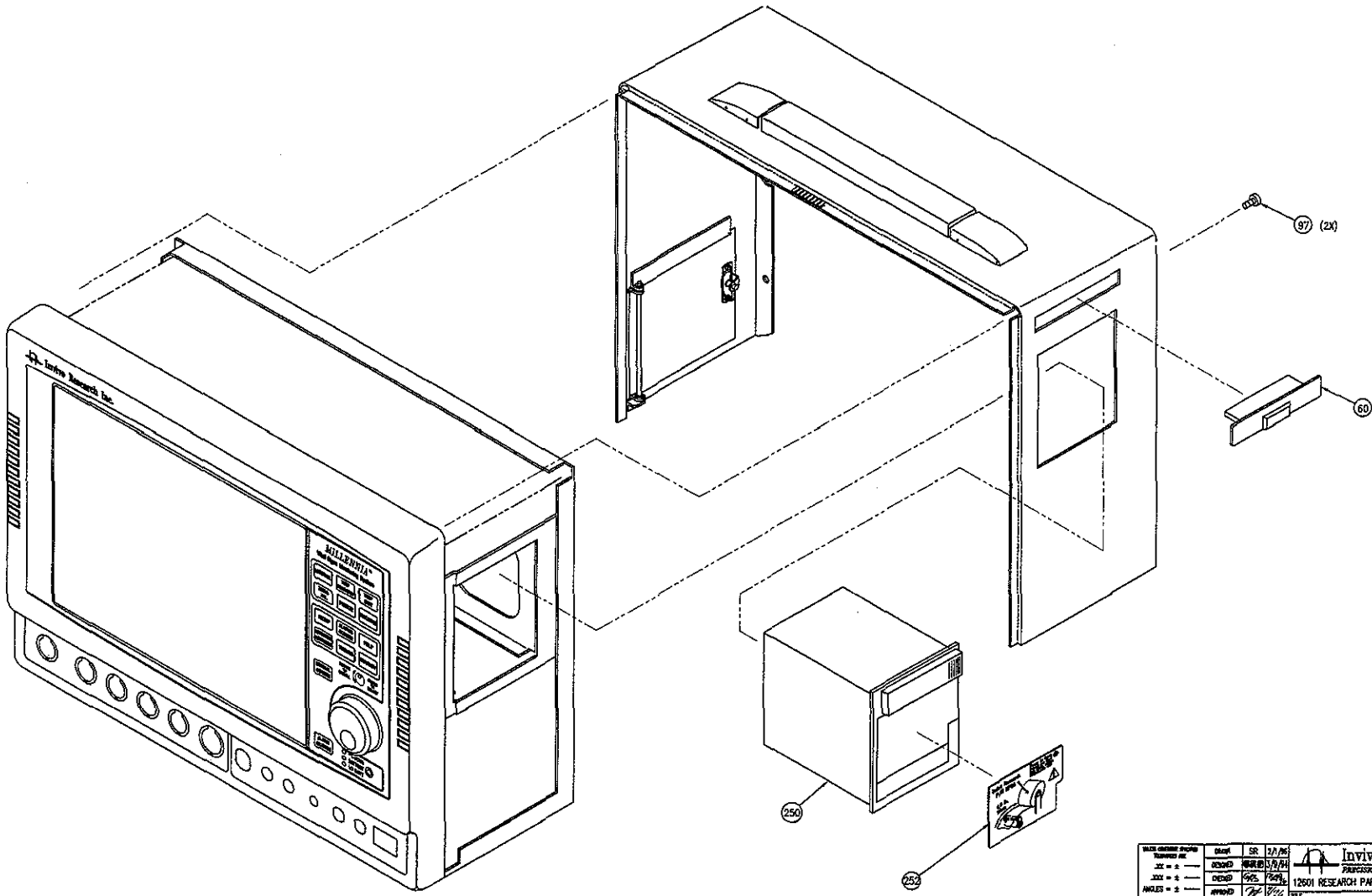
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XX = ± ___ .XXX = ± ___ ANGLES = ± ___	DRAWN	SR	2/1/96
	REVIEWED		5/5/96
	CHECKED		
	APPROVED		
INCHES THIRD ANGLE PROJECTION DO NOT SCALE THIS DRAWING !!!			

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SIZE: E
ASSY: MILLENNIA 3500
VITAL SIGNS MONITOR

CAD SCALE	SHEET	DWG. NO.	REV.
.75 : 1	9 of 10	197C497	D

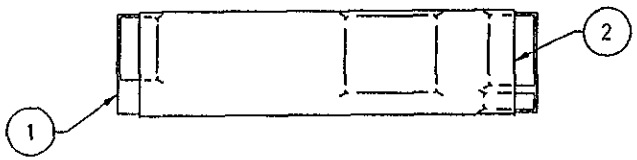
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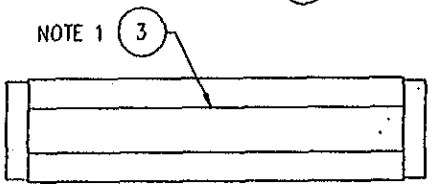
DRAWN	SR	2/1/05	Invivo Research Inc. PRECISION BIOMEDICAL INSTRUMENTS
ISSUED			12601 RESEARCH PARKWAY, ORLANDO, FL 32826
CHECKED			TITLE: ASSY: MILLENNIA 3500 VITAL SIGNS MONITOR
APPROVED			CAD SCALE .75 : 1 | SHEET 10 of 10 | DWG. NO. 197C497 | REV. D

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NOTES

1. CENTER P/N M000, FOAM TAPE ON BOTTOM OF ASSEMBLY AS SHOWN (DO NOT REMOVE BACKING)
2. PRINT LOT NUMBER, ASSEMBLY NUMBER, AND REVISION ON TOP OF ASSEMBLY USING PERMANENT MARKER IN CONTRASTING COLOR

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
3	M000	3.00	TAPE, OPEN CELL FOAM, DS, .06 THK. x .38 WD.
2	WT03	3.00	HEAT SHRINK, 3/4" I.D., BLACK
1	AB09	1	PCA, INVERTER, LCD

REV.	DESCRIPTION	BY	DATE
A	RELEASED, ECN #5026	CHY	6/6/96

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
.XX = ±
.XXX = ±
ANGLES = ±

DRAWN	CHY	6/6/96
DESIGNED	DM	6/7/96
CHECKED	GRS	6/12/96
APPROVED	PM	6/12/96

INCHES — THIRD ANGLE PROJECTION

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TITLE
ASSEMBLY: AB09A
PCA, LCD INVERTER w/HEAT SHRINK

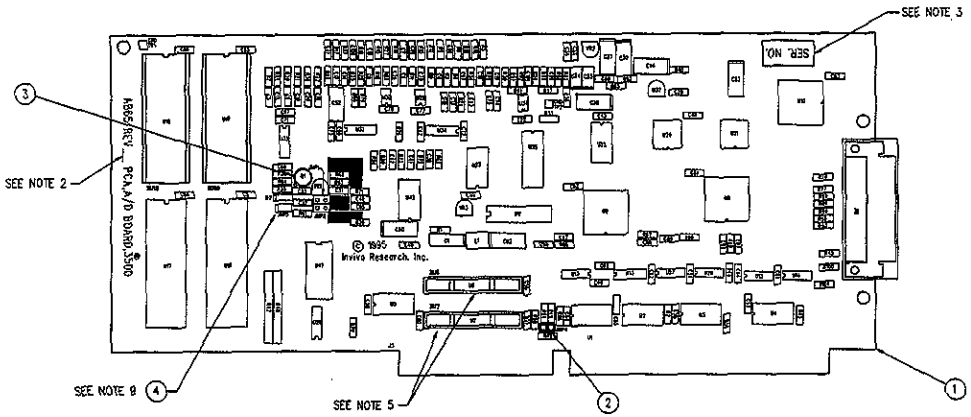
CAD SCALE	SHEET	DWG. NO.	REV.
1 : 1	1 OF 1	C94B719	A

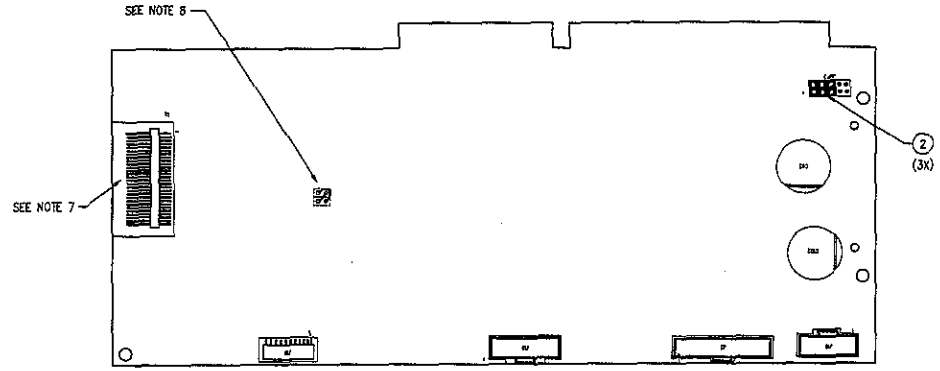
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
4	D006	1	DIODE, SCHOTTKY, 30V, 200MA
XU18,19	P029	2	SOCKET, 32 PIN DIP, .600 CTR.
XU6,7	P030	2	SOCKET, 24 PIN DIP, .300 CTR.
VR2,3	IR41	2	REGULATOR, POSITIVE LM340LAZ-5
U47	IMX00	1	SRAM, 32K X 8, 200NS, SOW28, 60256
U42	ICX36	1	CONVRTR, 12-BIT D/A, 20 PIN SOIC
U37	IL59	1	SENSOR, TEMP, CENTIGRADE, TO-92

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
U35	ICX37	1	CONVRTR, A/D, 16-BIT, 28 PIN, SOIC
U32,33,34	ILX06	3	IC,MULTIPLXR,CMOS ANALOG,8-CHAN,SO16
U28,30,31	IL310	3	OP AMP, LW DRFT/OFF, JFET, LF4120
U27	ICX32	1	OR GATE, QUAD 2, 74ACT32, 14 PIN SOIC
U12	ICX34	1	HEX INVRTR, (74ACT04) 14 PIN, SOIC
U13,26	ICX38	2	DECODR,/DEMLTPLXR, 74ACT138, SO16
U14,15,29	ICX28	3	IC, F/F, EDG-TRIG, DUAL D, 74ACT74

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
U16,17,18,19	IM48A	4	I.C. FLASH MEMORY, CMOS, 5V, 4MBIT
U20,21	ICX06	2	TIMER, PROG, INT, PLCC28, 82C53
U11	IC87	1	IC, SO16, SFTWR, CNTRLD, SMD, GNRTR
U8,9,10	INX02	3	I/O, PARALLEL, 8255, CMOS 44PLCC
U1-5,22,23	ICX35	7	XCVR, OCTL, BI-DIRECTNL, 20P SOIC
TP1,2	PA00	2	CONN, 1P, SR, HDR, ST, UNSHRD, (.10)
R91,92	RX105	2	RES, 10K, 1%, .125W, 50PPM, CHIP
R82	RX148	1	RES, 33.2K, 1%, .125W, 100PPM, 1206
R79,83	RX61	2	RES, 30.1K, 1%, .125W, SMD, 1206
R53,58-60,69, R77,78,81	RX41	8	RES, 200 OHM, 5%, .125W, 200PPM, CHIP
R48	RS45	1	RES, 1.5K, 5%, 200PPM, 9-PIN SIP
R47	RS44	1	RES, 1.8K, 5%, 200PPM, 9-PIN SIP
R45,86,100, R101	RX58	4	RES, 20K, 1%, .125W, SMD, 1206
R44,90	RX147	2	RES, 200 OHM, 1%, .125W, 100PPM, 1206
R40	RX19	1	RES, 2K, 5%, .125W, 200PPM, CHIP
R39	RX136	1	RES, 825 OHM, 1%, .125W, 100PPM,1206
VR1	IR56	1	REGULATOR, 5V, TO-92, LM2936Z
R35	RX93	1	RES, 3.3K, 5%, .125W, 200PPM, 1206
R31	RX12	1	RES, 2.2K, 5%, .125W
R7,20-30,32, R33,34,62,72, R73,84,87-89	RX42	22	RES, 100 OHM, 5%, .125W, 200PPM, CHIP
R5,6,10,11,14 R15,18,19,38, R56,57,61, R63,65-68,71, R80,85,93,94	RX57	22	RES, 10K, 1%, .125W, SMD, 1206
R3,4,8,9,12,13 R16,17,54,55	RX84	10	RES, 5.1K, 1%, .125W, SMT, 1206
R2,37,42,43 R49,50,64,70	RX141	8	RES, 33 OHM, 5%, .125W, 200PPM, 1206
R1	RX23	1	RES, 1K, 5%, .125W, 200PPM, 1206 CHIP
Q1	Q016	1	TRANS, SD214
L1	TX01	1	INDUCTOR, 100UH, 100MA, SUR-MOUNT
JMP3	PA37	1	HEADER, UNSH, DR, 10 PIN (.10)
JMP4	PA49	1	HEADER, UNSH, SR, 2 PIN (.10)
J18	PA285	1	CONN, 24P, DR, HDR, SHRD, .050 CTRS.
J16	PA263	1	CONN, 10P, SR, HDR, SHRD, .049
J15	PA286	1	CONN, 30P, DR, HDR, SHRD, .050 CTRS.
J11	PA299	1	CONN, 50P, RA, SCKT, ROBINSON NUGENT
J7	PA268	1	CONN, 30P, SR, HDR, RA, .038 CTRS.
J5	PA276	1	CONN, 40P, DR, HDR, SHRD, .050 CTRS
C95	CX24	1	CAP, 560pF, 5%, NPO, 50V, 1206, SMD
C89,93	CX06	2	CAP, 10pF, 20%, 50V, C0G, CHIP, CER.
C45,102	CA28	2	CAP, 1000uF, 20%, 25V, ALUM. RAD.
C30,37,38 C50,52,53, C92,96	CXT05	8	CAP, 10uF, 20%, 35V, SIZE D, TANT.
C29	CX13	1	CAP, .001uF, 10%, 50VDC, X7R, CHIP
D7	DDX11	1	DIODE, SCHTIKY, BARRIER, 50V, BAS86
C24, 25	CXT13	2	CAP, 2.2uF, 5%, 20V, TANT., SIZE "E", SM
C13,18,19,23	CX28	4	CAP, .015uF, 5%, 50V, Z5U, CHIP, CER.
C4,6-8,28,36, C97-101	CX22	11	CAP, .1uF, 10%, 50V, X7R, 1206 CHIP
C2,5,9-12, C14-17,20-22, C31-35, C39-44,46-49, C51, 54-68, C71-88, 90	CX07	63	CAP, .1uF, 20%, 50V, Z5U, CHIP, CER.
C1	CXT02	1	CAP, 6.8uF, 20%, 35VDC, CHIP, TANT.
3	T030	1	TRANSISTOR PAD, T018 CASE
2	PA66	4	SHUNT, 2 POSITION
1	B142	1	PCB, A/D BOARD, 3500, REV. B

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION





NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY DRAWING REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. COMPONENTS SHOWN AS SOLID ARE TO BE OMITTED.
5. U6 (AM47) & U7 (AM48) TO BE INSTALLED AT FINAL ASSEMBLY.
6. MAXIMUM COMPONENT HEIGHT OF ANY COMPONENT NOT TO EXCEED .625 .
7. CUT LEADS OF XU18 & U17 FLUSH TO .015 MAX. ABOVE SURFACE OF BOARD UNDER PINS OF J7

SOLDER SIDE

8. JUMPER JMP1-1 TO JMP2-2 AND JUMPER JMP2-1 TO JMP1-2. ON THE SOLDER SIDE OF THE BOARD.
9. INSTALL D006 IN JMP5 THRU-HOLES ON COMPONENT SIDE.

REV.	DESCRIPTION	BY	DATE
H	PER ECN #5228	CHY	21AUG96
G	PER ECN #5202	SR	02AUG96
F	PER ECN #5129	SLC	01JUL96
E	PER ECN #5039M	JRB	5/17/96
D	PER ECN #5011	CHY	4/26/96
C	REVISED PER ECN #4977	SLC	12MAR96
B	REVISED PER ECN #4881M	SLC	14JAN96
A	RELEASED ECN #4631	SLN	11/16/95
02	PROTOTYPE REVISION	SR	8/28/95
01	PROTOTYPE REVISION	SLN	8/15/95

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XX = ± —
XXX = ± —
ANGLES = ± —

THIRD ANGLE PROJECTION

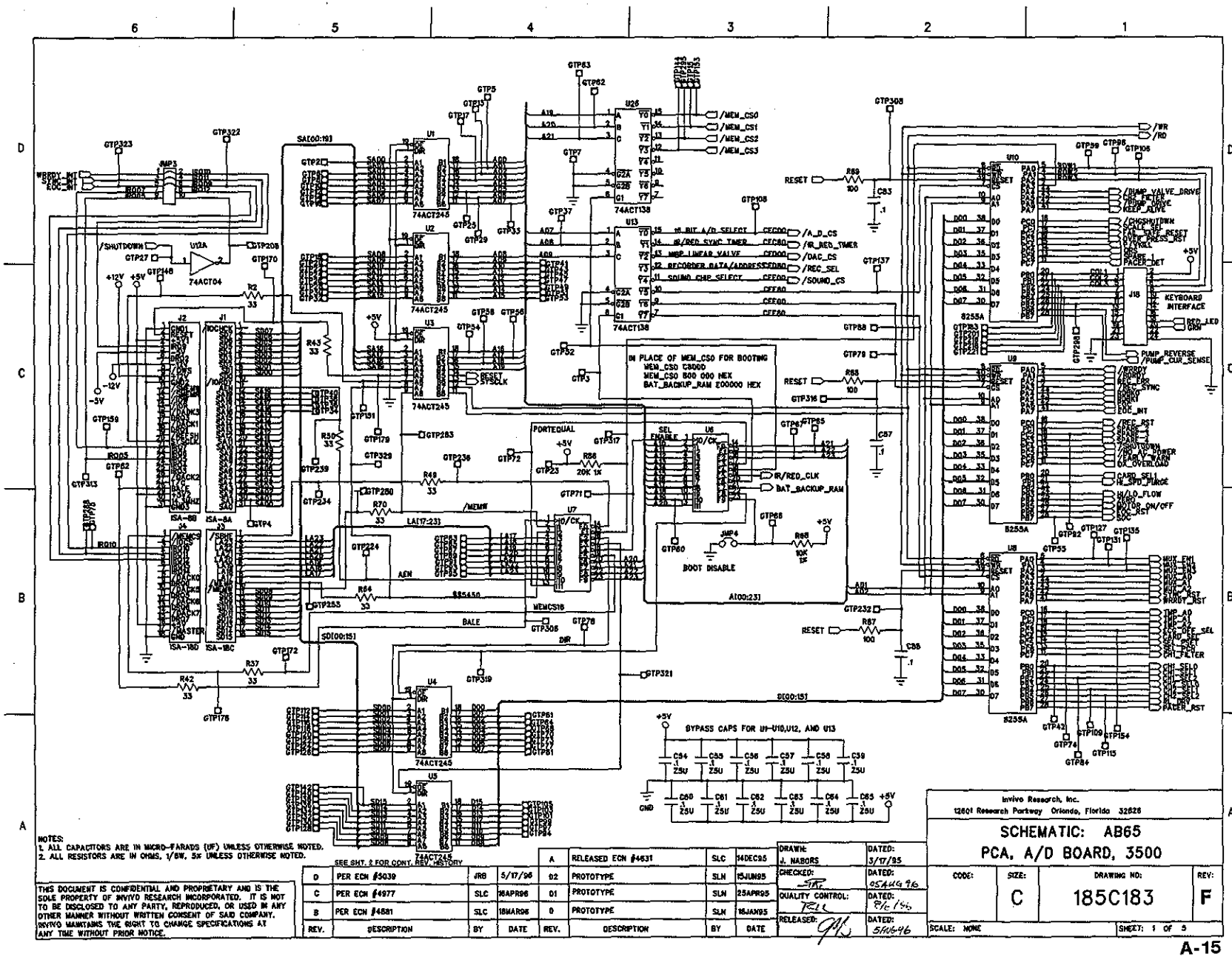
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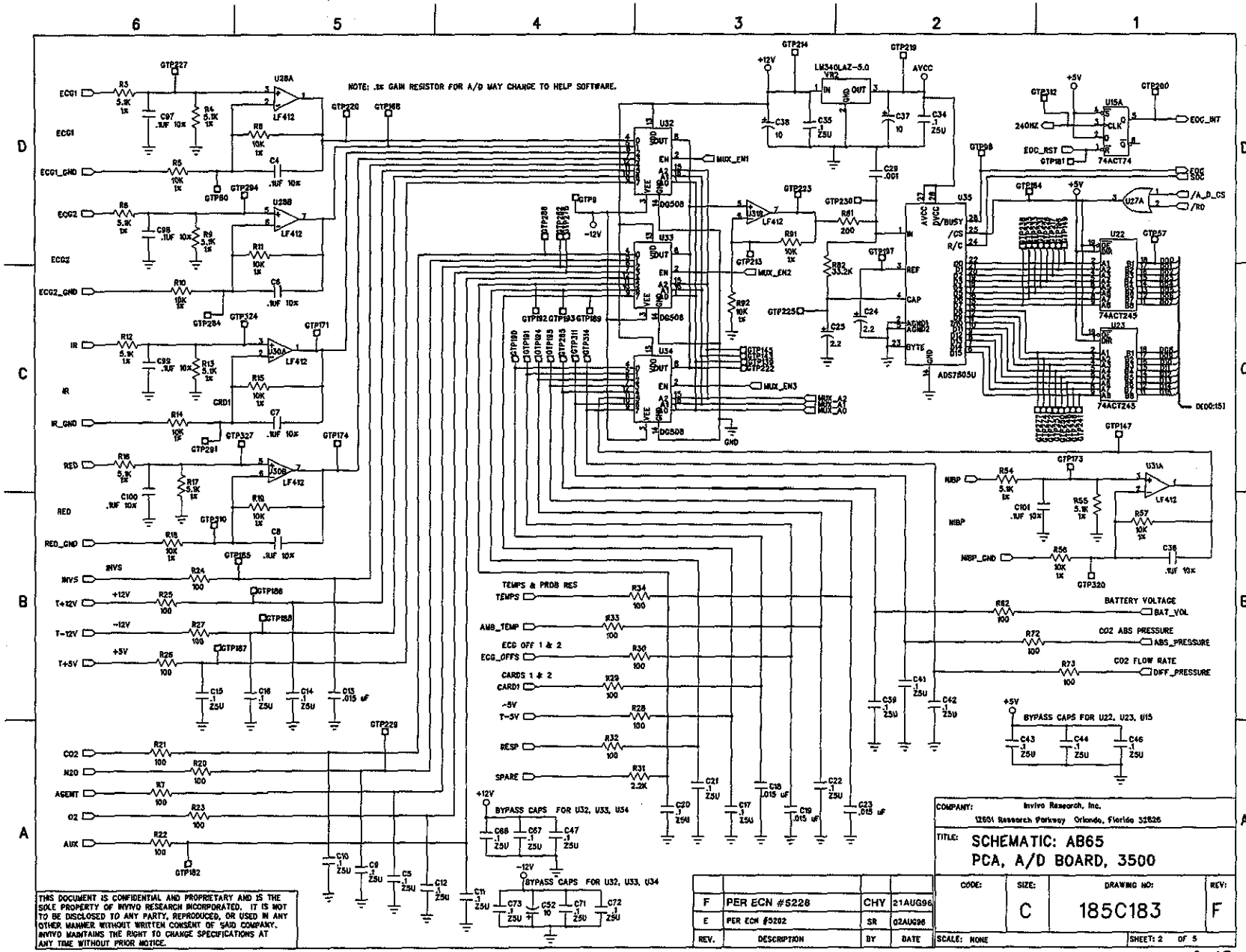
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DESIGNED	SLN	8/22/95
CHECKED	JWM	
APPROVED		

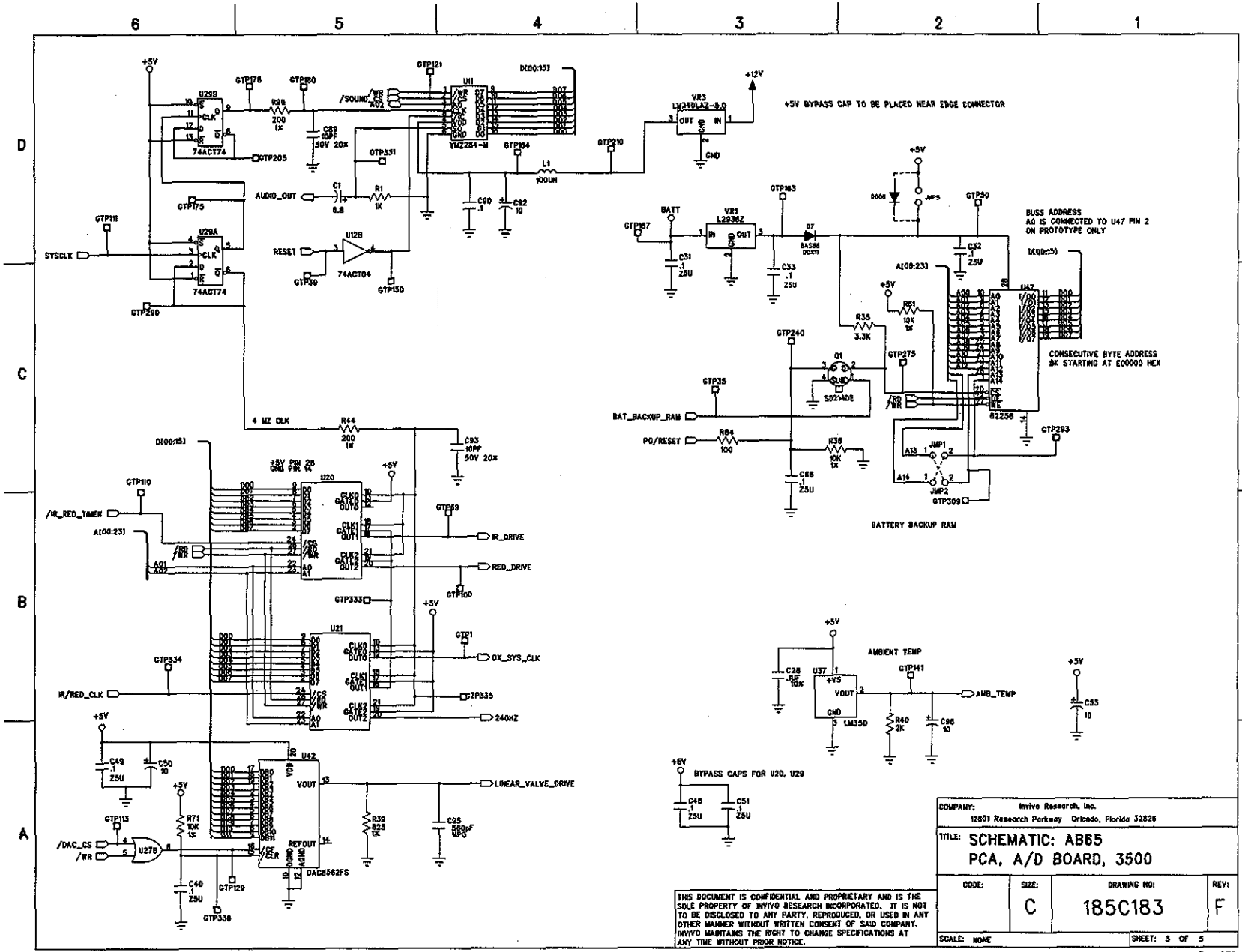
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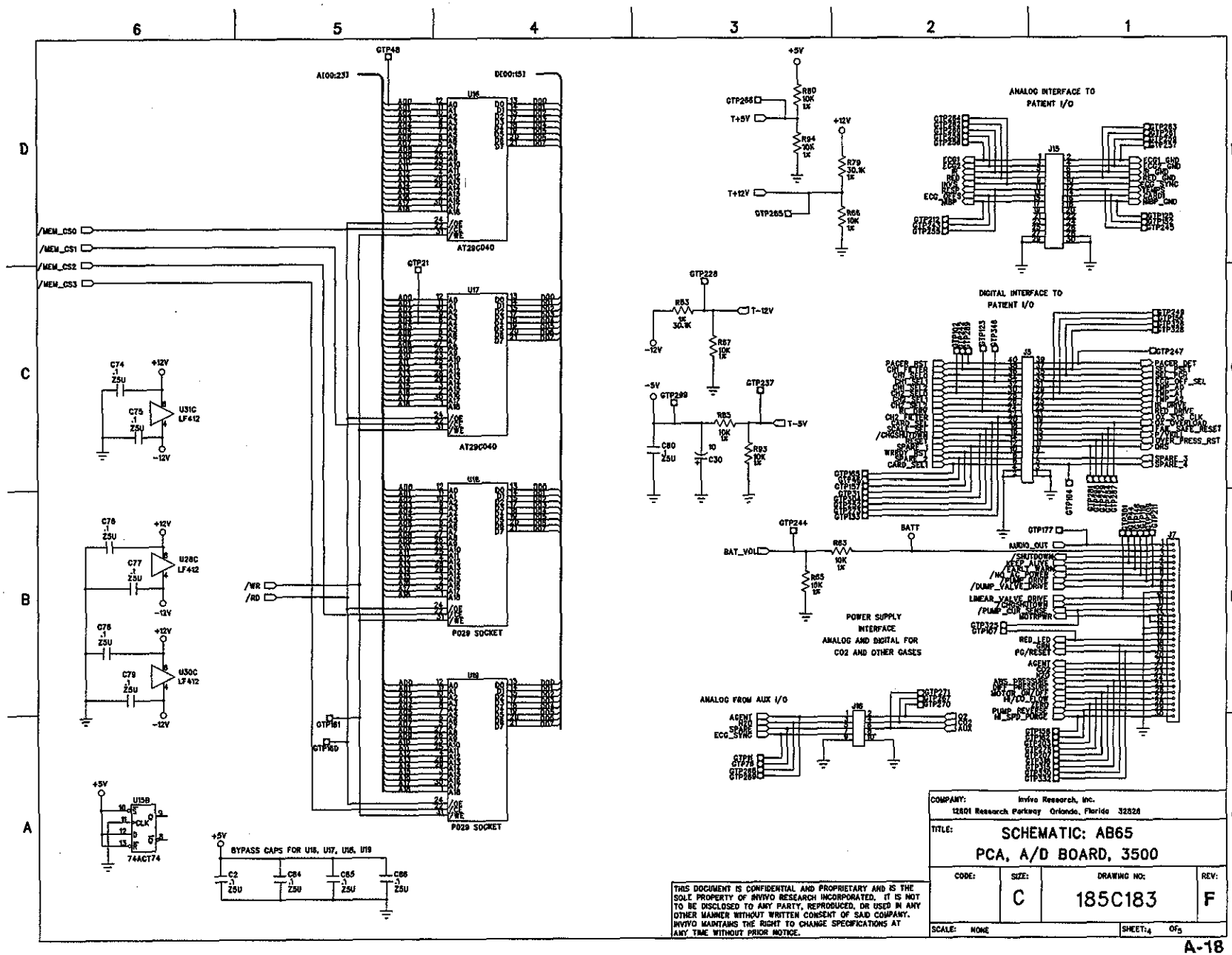
SIZE: E
ASSEMBLY: A865
PCA, A/D, 3500

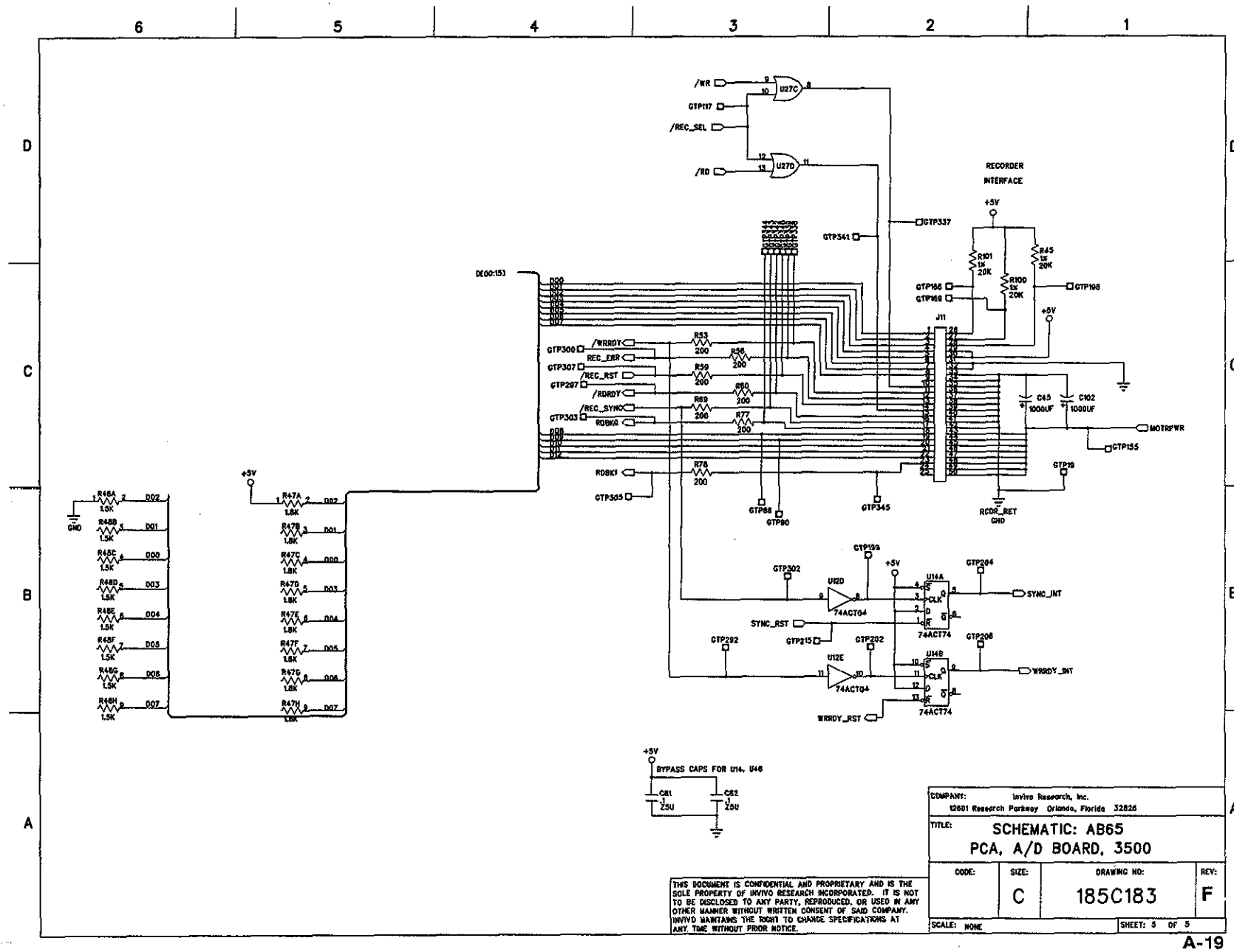
CAD SCALE	SHEET	DWG. NO.	REV.
1.5 : 1	1 OF 1	1940638	H


IN PLACE OF MEM_CS0 FOR BOOTING
MEM_CS0 C8000
MEM_CS0 800 000 HEX
BAT_BACKUP_RAM E00000 HEX
BOOT DISABLE
BYPASS CAPS FOR U1-U10,U12, AND U13
74ACT245
74ACT138
74ACT04
8255A
KEYBOARD INTERFACE
PUMP_REVERSE
/PUMP_CUR_SENSE
/IR_RED_CLK
/BAT_BACKUP_RAM
/MEM_CS0
/MEM_CS1
/MEM_CS2
/MEM_CS3
/A_D_CS
/IR_RED_TIMER
/DAC_CS
/REC_SEL
/SOUND_CS
/SHUTDOWN
/PUMP_VALVE_DRIVE
/PUMP_DRIVE
/KEEP_ALIVE
/WDSHUTDOWN
/PACER_SEL
/SAFE_RESET
/OVER_PRESS_RST
/SYSCLK
/PACER_DET
/REC_RST
/SPARE
/SHUTDOWN
/PEAK_VALVE_OPEN
/OR_OVERLOAD
CARD_SEL
/M_SPD_PURGE
M/LO_FLOW
/MOTOR_ON/OFF
/DAC_RST
/MUX_ENA
/MUX_A0
/MUX_A1
/MUX_A2
/BOARD_RST
/TMP_A0
/TMP_A1
/TMP_A2
/A/D_SEL
/A/D_RD
/A/D_WR
/A/D_FILTER
/CMP_SEL0
/CMP_SEL1
/CMP_SEL2
/CMP_WR
/CMP_RD
/PACER_RST
SA[00:19]
SD[00:15]
LA[17:23]
A[00:23]
D[00:15]
PORTEQUAL
/MEMW
/MEMR
AEN
BALE
MEMCS16
IRQ05
IRQ10
ISA-8B
ISA-8A
ISA-16D
ISA-16C
MASTER
NOTES:
1. ALL CAPACITORS ARE IN MICRO-FARADS (UF) UNLESS OTHERWISE NOTED.
2. ALL RESISTORS ARE IN OHMS, 1/8W, 5% UNLESS OTHERWISE NOTED.
SEE SHT. 2 FOR CONT. REV. HISTORY
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REV. DESCRIPTION BY DATE
D PER ECN #5039 JRB 5/17/96
C PER ECN #4977 SLC 26APR96
B PER ECN #4681 SLC 18MAR96
A RELEASED ECN #4631 SLC 14DEC95
02 PROTOTYPE SLN 15JUN95
01 PROTOTYPE SLN 25APR95
0 PROTOTYPE SLN 16JAN95
DRAWN: J. NABORS DATED: 3/17/95
CHECKED: DATED: 25AUG96
QUALITY CONTROL: DATED: 8/6/96
RELEASED: DATED: 5/16/96
Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
SCHEMATIC: AB65
PCA, A/D BOARD, 3500
CODE: SIZE: C DRAWING NO: 185C183 REV: F
SCALE: NONE SHEET: 1 OF 5


NOTE: .1% GAIN RESISTOR FOR A/D MAY CHANGE TO HELP SOFTWARE.
ECG1
ECG1_GND
ECG2
ECG2_GND
IR
IR_GND
RED
RED_GND
INVS
T+12V
T-12V
T+5V
CO2
N2O
AGENT
O2
AUX
TEMPS
AMB_TEMP
ECG_OFFS
CARDS 1 & 2
-5V
RESP
SPARE
NIBP
NIBP_GND
BATTERY VOLTAGE
BAT_VOL
CO2 ABS PRESSURE
ABS_PRESSURE
CO2 FLOW RATE
DIFF_PRESSURE
BYPASS CAPS FOR U22, U23, U15
BYPASS CAPS FOR U32, U33, U34
TEMPS & PROBE RES
ECG OFF 1 & 2
CARDS 1 & 2
MUX_EN1
MUX_EN2
MUX_EN3
MUX_A2
MUX_A1
MUX_A0
ADS7805U
74ACT245
74ACT74
LF412
DG508
LM340LAZ-5.0
/A_D_CS
/RD
/BUSY
/CS
R/C
EOC_INT
EOC_RST
EOC
SOC
240HZ
AVCC
+12V
-12V
+5V
GND
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB65
PCA, A/D BOARD, 3500
CODE:
SIZE: C
DRAWING NO: 185C183
REV: F
SCALE: NONE
SHEET: 2 OF 5
F PER ECN #5228 CHY 21AUG96
E PER ECN #5202 SR 02AUG96
REV. DESCRIPTION BY DATE
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+5V BYPASS CAP TO BE PLACED NEAR EDGE CONNECTOR
BUSS ADDRESS
A0 IS CONNECTED TO U47 PIN 2
ON PROTOTYPE ONLY
CONSECUTIVE BYTE ADDRESS
8K STARTING AT E00000 HEX
BATTERY BACKUP RAM
AMBIENT TEMP
BYPASS CAPS FOR U20, U29
4 MZ CLK
/IR_RED_TIMER
IR/RED_CLK
/DAC_CS
/WR
/SOUND_WR
AUDIO_OUT
SYSCLK
RESET
BAT_BACKUP_RAM
PG/RESET
IR_DRIVE
RED_DRIVE
DX_SYS_CLK
240HZ
LINEAR_VALVE_DRIVE
AMB_TEMP
74ACT774
74ACT04
YM2284-M
LM340LAZ-5.0
L2936Z
LM35D
DAC8562FS
62256
SD214DE
BAS86
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COMPANY: Invivo Research, Inc.
12801 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB65
PCA, A/D BOARD, 3500
CODE:
SIZE: C
DRAWING NO: 185C183
REV: F
SCALE: NONE
SHEET: 5 OF 5


ANALOG INTERFACE TO PATIENT I/O
DIGITAL INTERFACE TO PATIENT I/O
POWER SUPPLY INTERFACE ANALOG AND DIGITAL FOR CO2 AND OTHER GASES
ANALOG FROM AUX I/O
BYPASS CAPS FOR U18, U17, U16, U19
AT29C040
P029 SOCKET
74ACT74
/MEM_CS0
/MEM_CS1
/MEM_CS2
/MEM_CS3
/WR
/RD
BATT
BAT_VOL
+5V
+12V
-12V
T+5V
T+12V
T-12V
T-5V
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB65
PCA, A/D BOARD, 3500
CODE:
SIZE: C
DRAWING NO: 185C183
REV: F
SCALE: NONE
SHEET: 4 OF 5
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RECORDER INTERFACE
/WR
/REC_SEL
/RD
U27C
U27D
GTP117
+5V
GTP337
GTP341
J11
/WRRDY
REC_ERR
/REC_RST
/RDRDY
/REC_SYNC
RDBK0
RDBK1
GTP300
GTP307
GTP297
GTP303
GTP305
GTP88
GTP90
GTP345
RCDR_RET
GND
MOTRPWR
GTP155
GTP198
GTP196
GTP199
C45 1000UF
C102 1000UF
U12D
U12E
U14A
U14B
74ACT04
74ACT74
SYNC_INT
WRRDY_INT
SYNC_RST
WRRDY_RST
GTP302
GTP292
GTP215
GTP202
GTP204
GTP206
BYPASS CAPS FOR U14, U46
C81 .1 Z5U
C82 .1 Z5U
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12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB65
PCA, A/D BOARD, 3500
CODE:
SIZE: C
DRAWING NO: 185C183
REV: F
SCALE: NONE
SHEET: 5 OF 5

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
U3-7,49	ILX06	6	MUX, ANALOG, 8 CH, SO16, MUX08FS
U8,9	ILX16	2	I.C., INSTR. AMPLIFIER, SO8 PKG
U10,11, U50,56,62,70, U78	ILX09	7	I.C., OP-AMP, DL LWPWR, SO8, LM358
U13,14,40,41, U52,53,57,72	IL54	8	I.C., LINEAR OPTOCPL, 8 PIN, IL300
U15-18,43,59, U60,74	IL24	8	ISOLATOR, OPTO, DUAL CHANNEL
U19,35	ICX05	2	INVERTER, HEX, SO14, 74HC04
U20	ICX18	1	I.C., DUAL D FLP-FLP, CD4013BCM
U21,30,32 U81	ILX14	4	SW. ANALOG, 4PX2T, SO16, DG201
U22,23	ICX39	2	IC, SW. CAP. FLTR, LWPS, 16P WD. SO
U25,47	ICX10	2	FLIP-FLOP, DUAL "D", SO14, 74HC74
U26,31,34	ICX30	3	IC,COUNTR, BINARY, 14-STG, HC4020
U28,61	ILX11	2	COMP, DUAL, SING SUP, SO8, LM393
U29	ICX17	1	MULTIVIBRATOR, DUAL (4538), SO16
U45,69	IL51	2	OPTO-COUPLER, DUAL HCPL2531
U48	HY01	1	HYBRID, LED DRIVER/RECVR, SCOUT
U54,55	ILX22	2	IC, OP. AMP, DUAL LW. PWR, CMOS
U63,64	IL25	2	OPA27GP OP AMP
U65	X0088	1	XDUCER, PRESSURE (MPX2050GP)
U66	ILX18	1	IC, SO8, VOLT. REF. PRCSN, +5 VOLT
U73	ICX24	1	I.C., QUAD 2-INPUT NAND, 74CH00N
U77	ICX50	1	I.C.,MPX,MONO,CMOS,16P NARROW SOIC
VR1	IR09	1	REGULATOR, POSITIVE LM317LZ
VR2	IR58	1	VOLT. REF. PRECISN MICROPWR SHNT
VR3-6,8	IRX00	5	REFERENCE, VOLT. PREC., 10V, SO8
VR7	IRX01	1	REGULATOR, +5V, 5%, 100MA, SO8
Z1	DZ11	1	ZENER, 1N751, 5.1V, 500MW
R70,73	RX96	2	RES,220K,5%,200PPM,1/8W,1206
R115,218,130	RX02	3	RES,1K,5%,1/8W,1206
R144,145 R200,201	RP84	4	RES, 100K POT, 10%, .5W, 15 TURN
R221,222,67 R136,137,74,75	RP85	7	RES, 250K POT, 10%, .5W, 15 TURN

RESISTOR SELECT CHART #1; RSEL2,3,6,7,10,12,14,15							
U13 RSEL2	U14 RSEL3	U40 RSEL6	U41 RSEL7	U52 RSEL10	U53 RSEL12	U57 RSEL14	U72 RSEL15
IF(ma)	RSEL POSITION P/N & VALUE						
6.00 - 6.75	RF225 (365K)						
5.50 - 6.60	RF204 (301K)						
5.60 - 6.50	RF223 (257K)						
5.70 - 6.30	RF80 (196K)						
5.45 - 6.30	RF08(165K)						
5.50 - 6.50	RF220 (133K)						
5.60 - 6.40	RF11 (110K)						
5.40 - 6.50	RF219 (93.1K)						

SET +10.0 VDC REFERENCE INPUT BIAS AT RESISTOR REF. DES. RSEL2, 3, ETC. FOR A FORWARD CURRENT (IF) RANGE OF 6.0 ±0.75 ma DC AT CORRESPONDING OPTO-COUPLER PIN 1 USING APPROPRIATE RESISTOR FROM CHART

RESISTOR SELECT CHART #2; RSEL1,4,5,8,9,11,13,16										
MANUFACTURER & BIN		U13	U14	U40	U41	U52	U53	U57	U72	
SIEMENS	IC. P. CLARE	RSEL1	RSEL4	RSEL5	RSEL8	RSEL9	RSEL11	RSEL13	RSEL16	
	E				RF226 (374K)				RF221 (187K)	
E	F				RF118 (402K)				RF222 (200K)	
F	G				RF227 (432K)				RF44 (215K)	
G	H				RF228 (487K)				RF184 (243K)	
H	I				RF229 (536K)				RF224 (267K)	

DETERMINE MANUFACTURER & BIN LETTER FOR THE OPTO-COUPLER THAT CORRESPONDS TO EACH RSEL POSITION; U13/RSEL1, ETC. SELECT APPROPRIATE RESISTOR FROM CHART

SEE SHEET 2 FOR NOTES

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
Q12-18,020	QX01	8	TRANS,PNP,SILI,SO23,TYPE 2907A
R254	RP81	1	RES, 250K POT, 10%,.5W, 20T,TOP ADJUST
R117,120	RX23	2	RES, 1K, 5%, .125W, 200PPM, CHIP
R213	RP67	1	RES, POT, 100K, 10%, .5W, CERMET
R110,119,146	RX42	3	RES, 100 OHM, 5%, .125W, 200PPM, CHIP
R80,85	RX75	2	RES, 51K, 1%, .125W, 100PPM, CHIP
R81,86	RX112	2	RES, 1.07 MEG, 1%, .125W, 200PPM
R82,87,99, R104,R175	RX83	5	RES, 1K, 1%, .125W, SMT 1206
R90,91	RX59	2	RES, 51.1K, 1%, .125W, SMD 1206
R84,89,202, R203,204	RX20	5	RES,470 OHM, 5%, .125W, 200PPM CHIP
R277	RX200	1	RES, 221K, 1%, .1W, 200PPM, 0805
RSEL1-16	SEE CHARTS	-	SEE RESISTOR SELECT CHARTS
R242	RX194	1	RES, 1.02 MEG, 1%, 125W, 220V, 1206
R96,152,252, R263	RX24	4	RES,22 OHM, 5%, .125W, 200PPM CHIP
R98	RX85	1	RES, 182K, 1%, .125W, 100PPM, 1206
R94,95,100	RX72	3	RES, 75K, 1%, .125W, SMD, 1206
R102	RX66	1	RES, 90.9K, 1%, .125W, SMD, 1206
R103	RX116	1	RES, 267K, 1%, .125W, 100PPM, 1206
R92,93,286	RP63	3	RES, 50K POT, 10%, .5W, 20T, TRIMMER
R121,124	RX115	2	RES, 5.11K, 1%, .125W, 100PPM, 1206
R1, R112, 185, R186, 187, 311	RX40	6	RES, 10K, 5%, .125W, 200PPM, CHIP
R114,229,235	RX67	3	RES, 2K, 1%, .125W, SMD, 1206
R6,R8	RX28	2	RES, 249K, 1%, .125W, 200PPM, 1206
R71,72,141,142 R190,207,209	RM45	7	RES, 100K,>.05W, 1%, MF
R59,123,126,135 R178,179,298,299 R300,83,88,66	RX17	12	RES, 100K, 1%, .125W, 200PPM, CHIP
R125	RX61	1	RES, 30.1K, 1%, .125W, SMD, 1206
R132	RX151	1	RES, 43.2K, 1%, 100PPM, 1206 CHIP
R133	RF28	1	RES, 40.2K
R134	RF51	1	RES, 1.5 MEG
R122,131,250 R261	RX133	4	RES, 5.62K, 1%, .125W, 100PPM, 1206
R155,156	RX152	2	RES, 383K, 1%, .125W, 100PPM, 1206
R157,158	RX134	2	RES, 2.05K, 1%, .125W, 100PPM, 1206
5	HI23	4	INSULATOR BEAD, GLASS
R217	RX30	1	RES, 32.4K, .1%, .25W, 50PPM, LL
R168	RP71A	1	RES,POT,200 OHM,10%,.25W,CER,TOP ADJ.
R169	RX121	1	RES, 499 OHM, 1%, .25W, 100PPM, 1206
R170	RX147	1	RES, 200 OHM, 1%, .125W, 100PPM, 1206
R180,181, R182,183	RX70	4	RES, 10 OHM, 5%, .125W, 200PPM, 1206
R173	RX162	1	RES, 806K, 1%, .125W, 100PPM, 1206
R101	RX74	1	RES, 4.02K, 1%, .125W, SMD, 1206
R176	RP86	1	RES,10K POT,10%, 15 TN. FLAT SIDE ADJ.
R177	RP83	1	RES, 5K POT, 10%, 15 TN. FLAT SIDE ADJ.
XU48	PO27	.25	SOCKET, 64 PIN SR, .100 CTR.
4	PAJ18B	3	SHUNT, 2 POSITION .100 CENTERS
R215,216	RX164	2	RES, 18 OHM, 5%, .125W, 200PPM, CHIP
R224,230,305	RX36	3	RES, 8.06K, .1%, .25W, 50PPM, 1206
R225,231	RX35	2	RES, 12.1K, .01%, .25W, 50PPM, 1206
R226,232,306	RX32	3	RES, 2.21K, .1%, .25W, 50PPM, LL
R105,106	RX19	2	RES, 2K, 5%, .125W, 200PPM, CHIP
T1,2,3,4	T064	4	TRANSFORMER, ISOLATION, 5000V
U1,2,12,24,27, U36,39,51,58 U71,75,76,80	ILX07	13	OP AMP, LW PWR ,FET INPT, 34182, SO8
3	N009	2	NUT, HEX, #4-40, NYLON
2	NS57	2	SCR, #4-40 X 1/2" LG. PHMS-NYLON

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
J8,9	PA294	2	HEADER, UNSH, SR, 3 PIN (.10)
J10	PA177	1	HEADER, 9P, SR, ST, UNSHRD, (.10)
J11	PA284	1	HEADER, 20P, DR, ST, SHRD, (.050 CTRS)
TP3	PA00	1	HEADER, 1P, SR, ST, UNSHRD, (.10)
JMP9	PA320	1	HEADER,2P,SR,RA,UNSHRD,LOW-PROF,(.10)
JMP7, JMP8	PA318A	2	HEADER,2P,SR,ST,UNSHRD,LOW-PROF,(.10)
L3,5,8,10 13,15,18,20	T034	8	COIL, 3.3uH, MOLDED
L1,2,6,7,11,12 L16,17	T022	8	COIL, 1000uH, MOLDED
L4,9,14,19	T027	4	COIL, 220uH
L21	TX01	1	INDUCTOR, 100uH, 100MA, SUR-MOUNT
LP1,3-5,8	DS06	5	SURGE ARRESTOR, 140V, 15%
LP2,LP6	DS07	2	SURGE ARRESTOR, 4.5 KV
P2	PA288	1	HEADER, 20P, DR, ST, .079 CTRS
P3	PA276	1	HEADER, 40P, DR, SHRD, .050 CTRS
Q1	QO03	1	TRANS, FET, N-CHNL, TO-92, VN10KM
Q2,3	QO59	2	TRANS, P-CH, EN DMOS FET, VP2206N3
Q4,5,8,10	QO37	4	MPSW01 NPNSILICON 1 WATT
Q5,7,9,11	QO38	4	MPS51 PNP
R113	RX01	1	RES, 1 MEG, 5%, .125W
R2,3,10,11,14, R15,18,19,49, R237,243-247	RX65	15	RES, 27.4K, 1%, .125W, SMD 1206
R4,12,16,20	R188	4	RES, 100 MEG, 5%, .25W
R5,9,13,17, R76-79,148, R149,,205,238, R239,269,283, R284	RX78	16	RES, 1.21K, 1%, .125W, 100PPM, 1206
R7,45,47	RX68	3	RES, 32.4K, 1%, .125W, SMD 1206
R307	RX64	1	RES, 22M, 5%, .125W,200PPM, 1206
R154,160,161	RX150	3	RES, 4.99K, 1%,125W, 100PPM, 1206
R68,69,138, R139,210,275, R194,195	RX161	8	RES, 1.5K,5%,.125W,200PPM,1206
R21-42,46,97, R118,127,150,172 R174,206,264, R290,291,295	RX57	34	RES, 10K, 1%, .125W, 100PPM, 1206
R43,44,108	RX107	3	RES, 2.49K, 5%
R48,53	RX08	2	RES, 4.7K, 5%, .125W
R50,R140,143 R196-199,211, R212	RX73	9	RES, 158K, 1%, .125W, SMD 1206
R51	RX118	1	RES, 174K, 1%, .125W, 200V, SMD 1206
R52	RX117	1	RES, 68.5 OHMS, 1%, .125W, 200V
R54-58,60,61, R128,129,151,153, R162-167,184, R228,234,236, R240,241,248 R251,262,267, R268,271,272, R276,287,308 R214,107,109	RX58	36	RES, 20K, 1%, .125W, 100PPM, 1206
R62,286 R227, R233	RX103	4	RES, 4.75K, .1%, .125W, 50PPM, CP
R64,309,310	RX104	3	RES, 80.6K, .1%, .125W, 50PPM, CP
R65,111,116, R289	R185	4	RES, 22 MEG, 5%, .5W, COMPOSITE
R171	RX16	1	RES, 51 OHM, 5%, .125W, 200PPM, 1206
R63, R303	RX105	2	RES, 10.0K, .1%, .125W, 50PPM, CP
R304	RX37	1	RES, 1K, .1%, .25W, 50PPM, 1206
Z4,Z5	DZX02	2	DIODE, ZENER, 9.1V, SOD-80 SMD
Z2,Z3	DZX01	2	DIODE, ZENER, 6.2V, SOD-80 SMD
Q19,21,22,23	QX05	4	TRANSISTOR, A13, TO92, NPN

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
J7	PA241	1	CONN., ROUND, PLASTIC, 7 PIN
J2-6	PA240	5	CONN., ROUND, PLASTIC, 6 PIN
J1,P4	PA01	2	HEADER, UNSH, SR, 6 PIN (.10)
F1-4	FU17	4	FUSE, 500MA, 125V, FST-ACT, SUBMIN
D49,D50	D006	2	DIODE, SCHOTTKY, 30V, 200MA
D1,2,5-10,41, D42	D004	10	DIODE, LOW LEAKAGE, 1N458A
D3,4,11-14,16 D20,21 D31-34,36-39	DDX11	17	DIODE, SCHOTTKY,BARRIER,50V,BAS86
D19,22, D35,40	DDX01	4	DIODE, SIGNAL, LEADLESS, 500MW
D15	D000	1	DIODE, SIGNAL, 1N4148
C49,148,208 C236-239 241 C242,251-264	CX30	23	CAP, .001uF, 5%, 50V, COG, 1206 CHIP
C105,C106 C114,C222	CX24	4	CAP, 560pF, 5%, 50V, NPO, 1206
C5	CX23	1	CAP, 1500pF, 5%, 50V, NPO, 1206 SMD
C172-175, C46,48,51-56, C68,72,75-78, C80,82,83,87, C88,89,99-102, C128-147, C149-153,156, C157,160-164, C166,168,169, C181-200, C202-205, C209-214, C217,228,229, C232-235, C245-248	CX22	104	CAP, .1uF,, 10%, 50V, X7R, 1206 SMD
C63	CX45	1	CAP, 680pf, 10%, 50V, NPO, 1206 SMD
C21,22,64,65, C107,108 C112,126,127	CX19	9	CAP, 270 pF, 5%, 50V, X7R, 1206 SMD
C1-3,7-15	CX46	12	CAP, 270 pF, 1%, 50V, COG, 1206 SMD
C44, C250	CX13	2	CAP, .001uF, 10%, 50V, X7R, 1206 SMD
C31,32,33,37, C43,73	CX11	6	CAP, .01uF, 10%, 50V, X7R, 1206 SMD
C19,20,62,223	CX09	4	CAP,100 pF, 10%, 50V, COG, 1206 SMD
C5,16-18,36, C45,59-61,69, C103,104,113, C165,167,176, C215,219,220	CX07	19	CAP, .1uF, 20%, 50V, Z5U, CHIP, CER.
C79,81	CX04	2	CAP, .047uF, 10%, 50V, X7R, CER.
C201	CXT08	1	CAP, 22uF, 20%, 16V, SIZE D, TANT.
C29,30,47,57, C58,66,67,84, C90,94-98,109, C110,115,154, C155,158,159, C177-180,218, C225,226	CXT05	28	CAP, 10uF, 20%, 35V, SIZE D, TANT.
C4	CXT04	1	CAP, 1uF, 20%, 35VDC, CHIP, TANT.
C85	CXT02	1	CAP, 6.8uF, 20%, 35VDC, CHIP, TANT.
C42	CP39	1	CAP, .015uF, 5%, 50VDC, POLYESTER
C34	CP30	1	CAP, .1uF, 5%, 50V, POLYESTER
C93	CP28	1	CAP, 1uF, 2%, 100V, POLYESTER
C25,28	CP17	2	CAP, .068uF, 5%, 100V, POLYESTER
C24,27,35	CP16	3	CAP, .0022uF, 5%, 50V, POLYESTER
C23,26	CP14	2	CAP, 3.3uF, 5%, AX, POLYESTER
C70,71,86,92	CP07	4	CAP, .01uF, 2%, 50V, PLOYESTER
C74	CC05	1	CAP, .001uF, 10%, 50V, X7R, CER.
1	B143	1	PCB, PATIENT FRONT END, 3500, REV. D

REV.	DESCRIPTION	BY	DATE
E	PER ECN #5174M	SLC	11/15/95
D	PER ECN #5160	SLC	7/7/95
C	PER ECN #5114	SLC	2/2/95
B	PER ECN #5016	SLC	10/4/94
A	RELEASED, ECN #4919	SLC	3/21/94
03	PROTOTYPE REVISION	SLH	9/15/95
02	PROTOTYPE REVISION	SLH	9/15/95
01	PROTOTYPE REVISION	SLH	9/15/95

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:
.XX = ± —
.XXX = ± —
ANGLES = ± —

DRAWN SLH 9/5/95
DESIGNED SLH 9/5/95
CHECKED
APPROVED

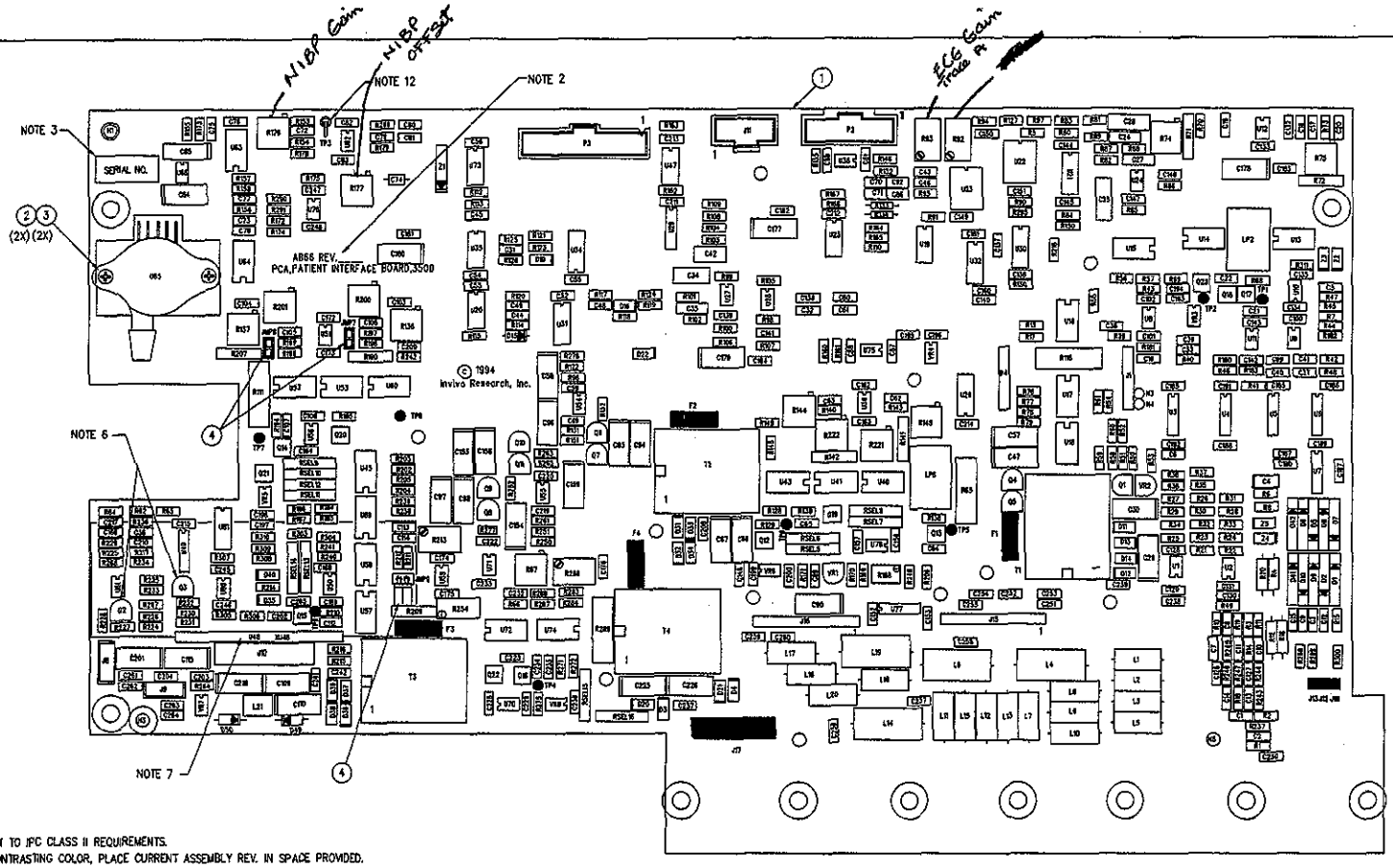
THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

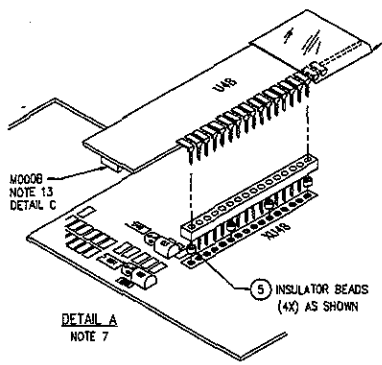
SIZE ASSEMBLY: AB66
PCA, PATIENT FRONT END, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 of 3	194D649	G

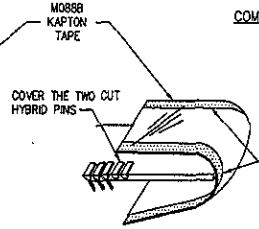


NOTES

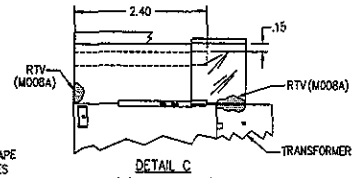
1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. COMPONENTS SHOWN AS SOLID ARE TO BE OMITTED.
5. MAXIMUM COMPONENT HEIGHT OF ANY COMPONENT NOT TO EXCEED .900".
6. COMPONENTS AT Q2 AND Q3 LOCATIONS ARE TO BE INSTALLED BENT OVER, AS SHOWN IN DETAIL A.
7. PLACE 4 GLASS INSULATOR BEADS (HI23) EVENLY SPACED (EVERY FOURTH PIN) BETWEEN 16 PIN SOCKET (P027) AND MAIN BOARD ASSEMBLY (A866) AT U48 AS SHOWN IN DETAIL A.
8. NOTE OMITTED.
9. NOTE OMITTED.
10. USING M0888 KAPTON TAPE, COMPLETELY ENCLOSE END OF HYBRID SO THAT EXCESS TAPE IS SEALED ON SIDES ONLY. SEE DETAIL B.
11. BEND LP1, 3, 4, 5 AND 8 TOWARD TOP OF AND PARALLEL WITH PCB AS SHOWN. COVER COMPLETELY WITH CLEAR RTV P/N M008A.
12. TP3 IS TO BE BENT OVER 90° AWAY FROM OTHER COMPONENTS.
13. AFTER MAIN BOARD ASSY HAS BEEN IN-CIRCUIT TESTED (BY VENDOR), ATTACH A 2.40 LG. PIECE OF DBL. SIDED OPEN CELL FOAM TAPE, P/N M000B, TO THE HYBRID, (HY01) AS SHOWN. PLACE HYBRID INTO SOCKETS; DO NOT REMOVE SECOND DRY-RELEASE LINER ON TAPE.
    PERFORMED AT INVIVO:
    REMOVE HYBRID (HY01) FROM AB66, REMOVE DRY-RELEASE LINER ON TAPE AND RE-INSTALL. FOR ADDITIONAL MECHANICAL HOLD APPLY A LIBERAL AMOUNT OF RTV, P/N M008A, TO HYBRID AT LOCATIONS INDICATED (SEE DETAIL C). RTV TO BE APPLIED ON TOP SURFACE OF HYBRID (HY01) AND TRANSFORMER (T3) FORMING A BOND. ALSO APPLY RTV TO TOP SURFACE OF HYBRID AND AB66 COMPONENT SURFACE BETWEEN U61 AND R228 FORMING A COMPLETE BOND. ALLOW ADEQUATE DRYING TIME.



DETAIL A
NOTE 7



DETAIL B
NOTE 10



DETAIL C
CAD SCALE- 1 : 1
NOTE 13

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE	DRAWN	SLN	7/5/95
.XX = ±	DESIGNED	SLN	7/5/95
.XXX = ±	CHECKED		
ANGLES = ±	APPROVED		

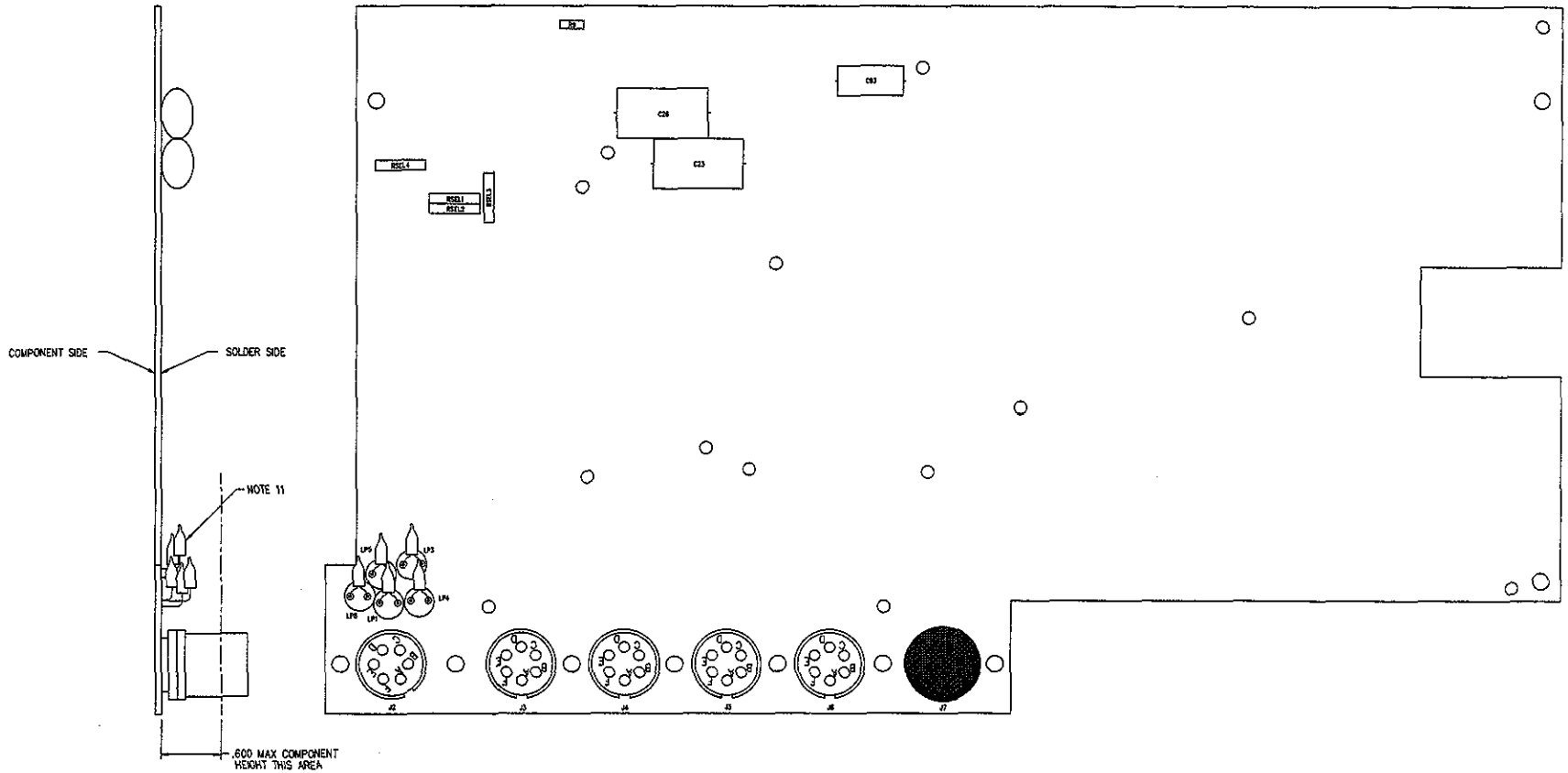
THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE: ASSEMBLY: AB66
PCA, PATIENT FRONT END, 3500

CAD SCALE	SHEET	DWG NO.	REV.
2 : 1	2 of 3	194D649	G



SOLDER SIDE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE	DRAWN	SLH	10/8/96
.XX ± 0.—	DESIGNED	SLH	10/8/96
.XXX ± 0.—	CHECKED	[illegible]	[illegible]
ANGLES ± 0.—	APPROVED	[illegible]	[illegible]

THIRD ANGLE PROJECTION

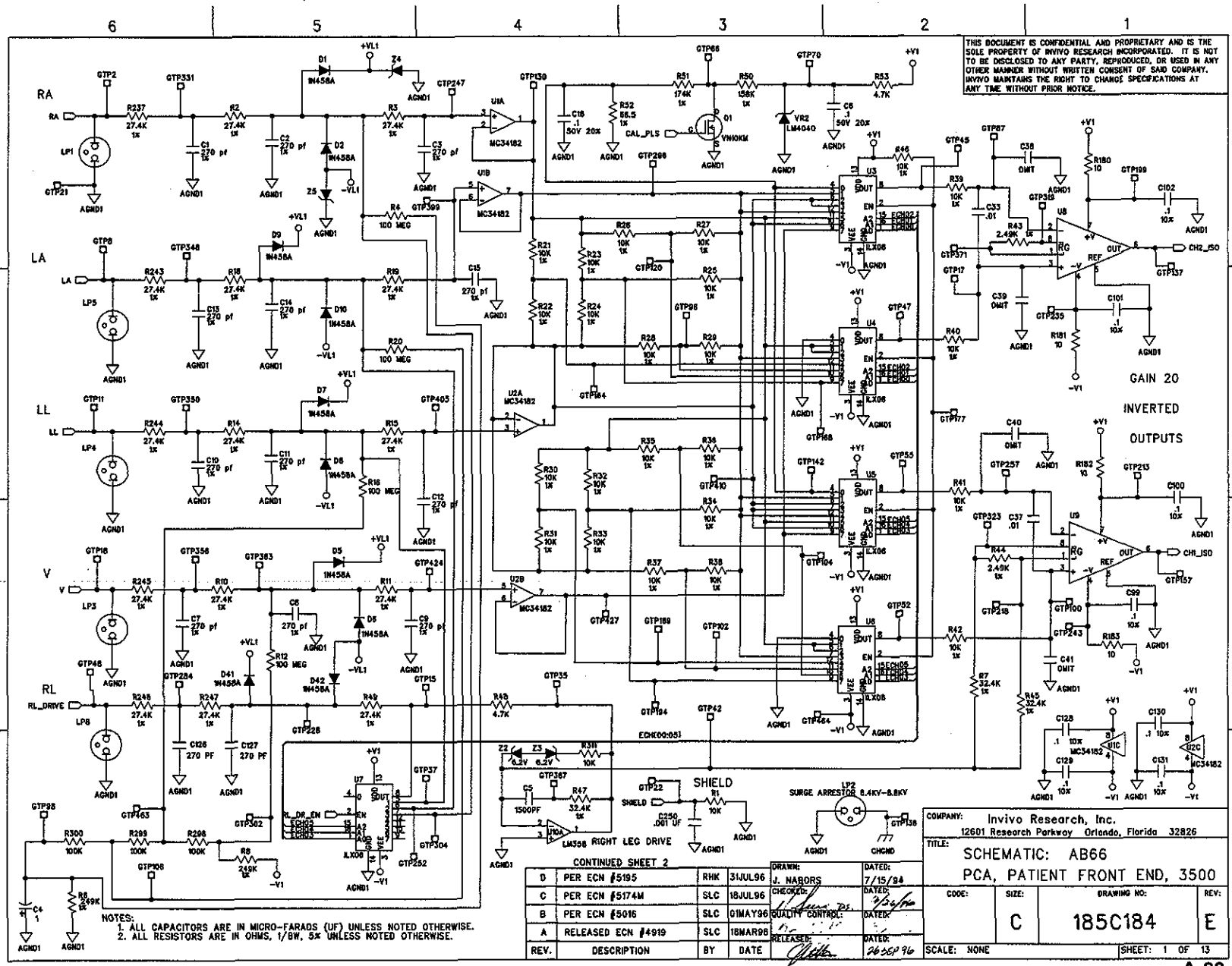
DO NOT SCALE THIS DRAWING !!!

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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE
ASSEMBLY: AB66
PCA, PATIENT FRONT END, 3500

CAD SCALE	SHEET	DWG NO.	REV.
2 : 1	3 of 3	194D649	G



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REV.	DESCRIPTION	BY	DATE
D	PER ECN #5195	RHK	31JUL96
C	PER ECN #5174M	SLC	18JUL96
B	PER ECN #5016	SLC	01MAY96
A	RELEASED ECN #4919	SLC	18MAR96

DRAWN: J. NABORS DATED: 7/15/94
CHECKED: DATED: 9/26/96
QUALITY CONTROL: DATED:
RELEASED: DATED: 26SEP96

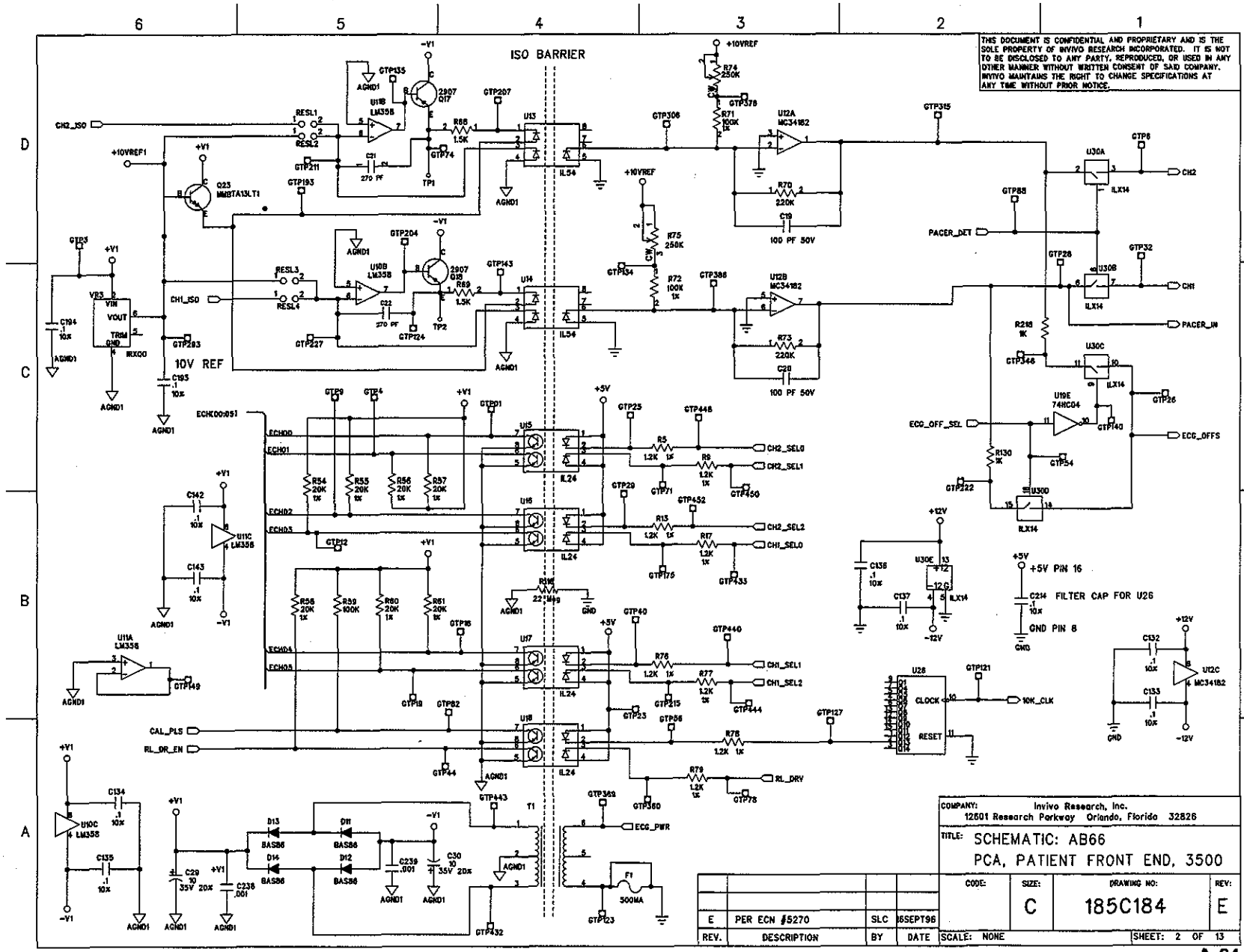
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826

TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500

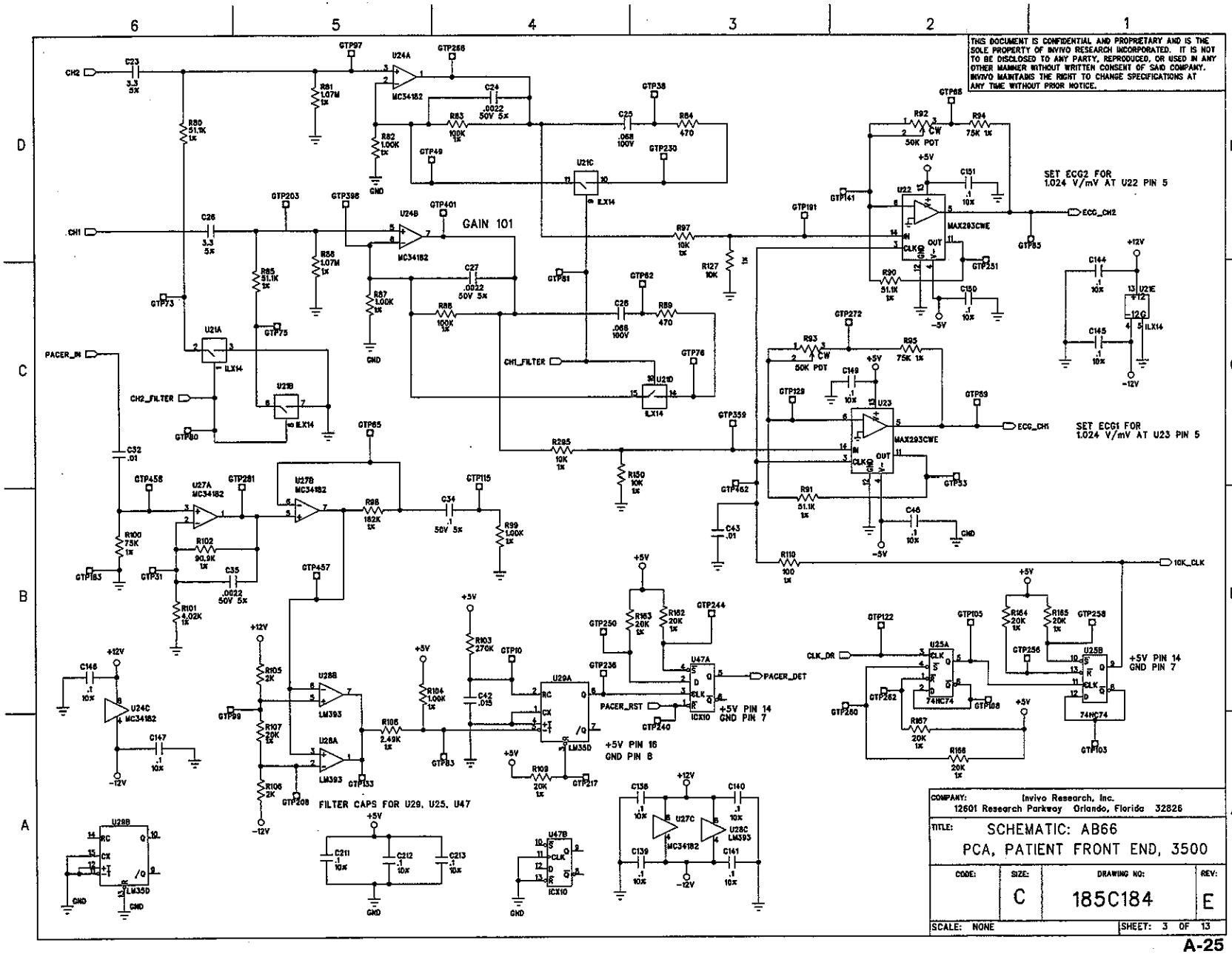
CODE:	SIZE:	DRAWING NO:	REV:
	C	185C184	E

SCALE: NONE SHEET: 1 OF 13

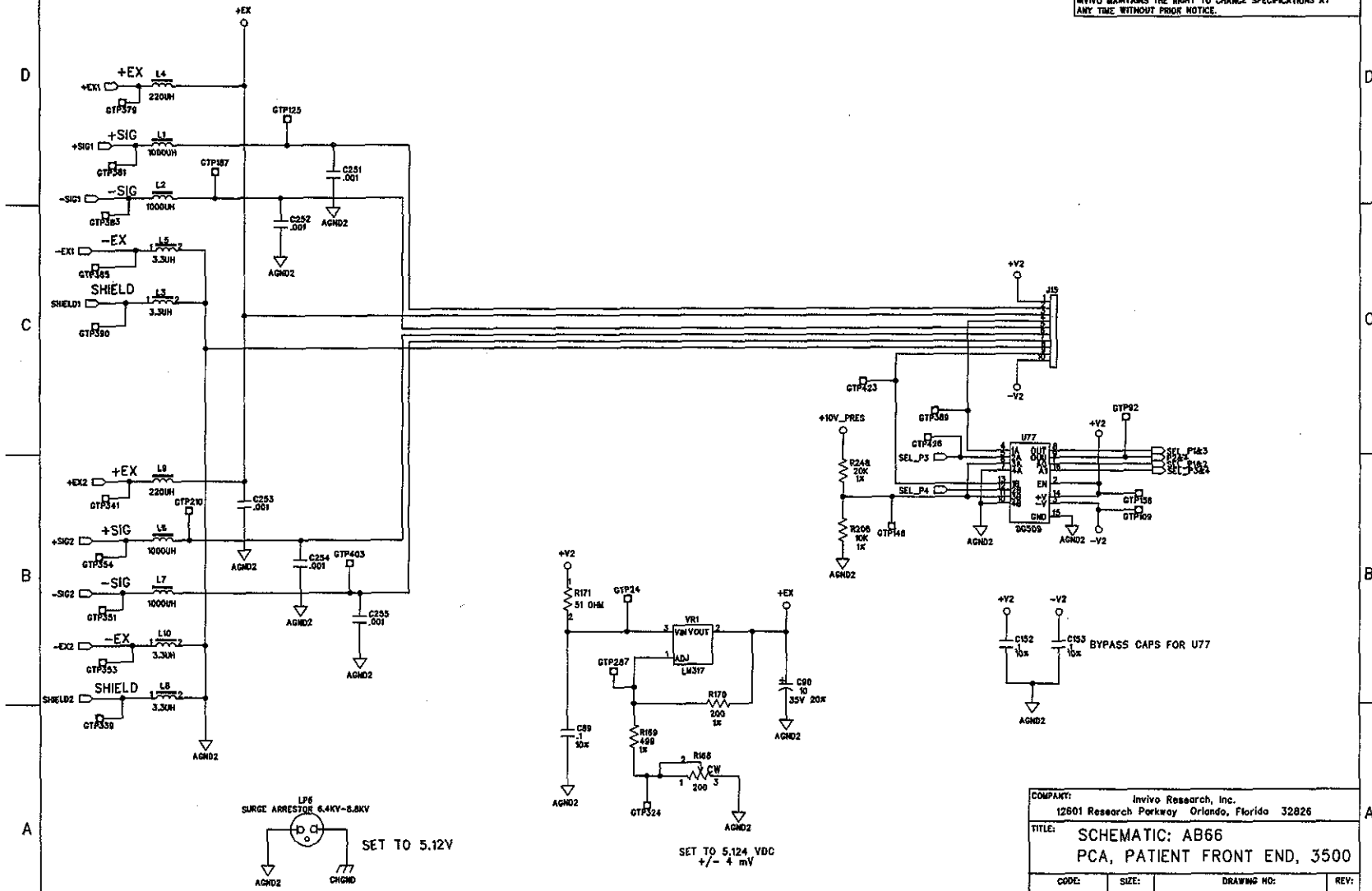
A-23


ISO BARRIER
10V REF
CH2_ISO
CH1_ISO
PACER_DET
PACER_IN
ECG_OFF_SEL
ECG_OFFS
ECG_PWR
CAL_PLS
RL_DR_EN
RL_DRV
CH2_SEL0
CH2_SEL1
CH2_SEL2
CH1_SEL0
CH1_SEL1
CH1_SEL2
10K_CLK
+5V PIN 16
C214 FILTER CAP FOR U26
GND PIN 8
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COMPANY: Invivo Research, Inc.
12501 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
E PER ECN #5270 SLC 6SEPT96
REV. DESCRIPTION BY DATE
SCALE: NONE
SHEET: 2 OF 13

A-24

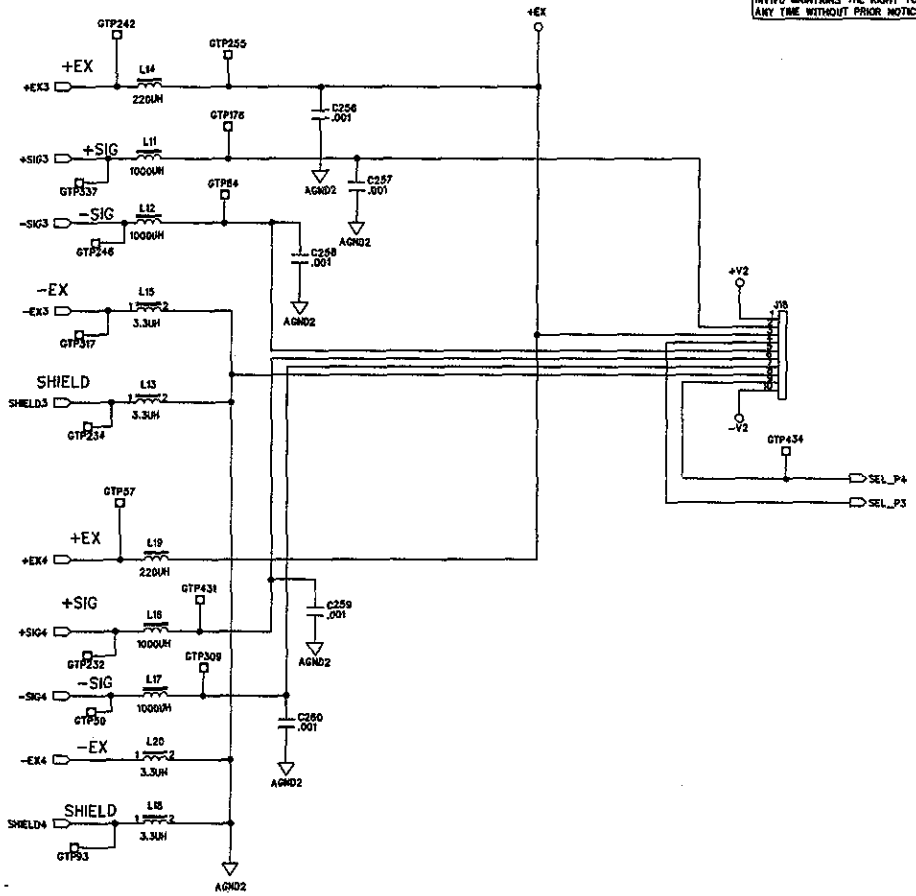

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GAIN 101
SET ECG2 FOR 1.024 V/mV AT U22 PIN 5
SET ECG1 FOR 1.024 V/mV AT U23 PIN 5
FILTER CAPS FOR U29, U25, U47
+5V PIN 16 GND PIN 8
+5V PIN 14 GND PIN 7
COMPANY: Invivo Research, Inc. 12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66 PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 3 OF 13

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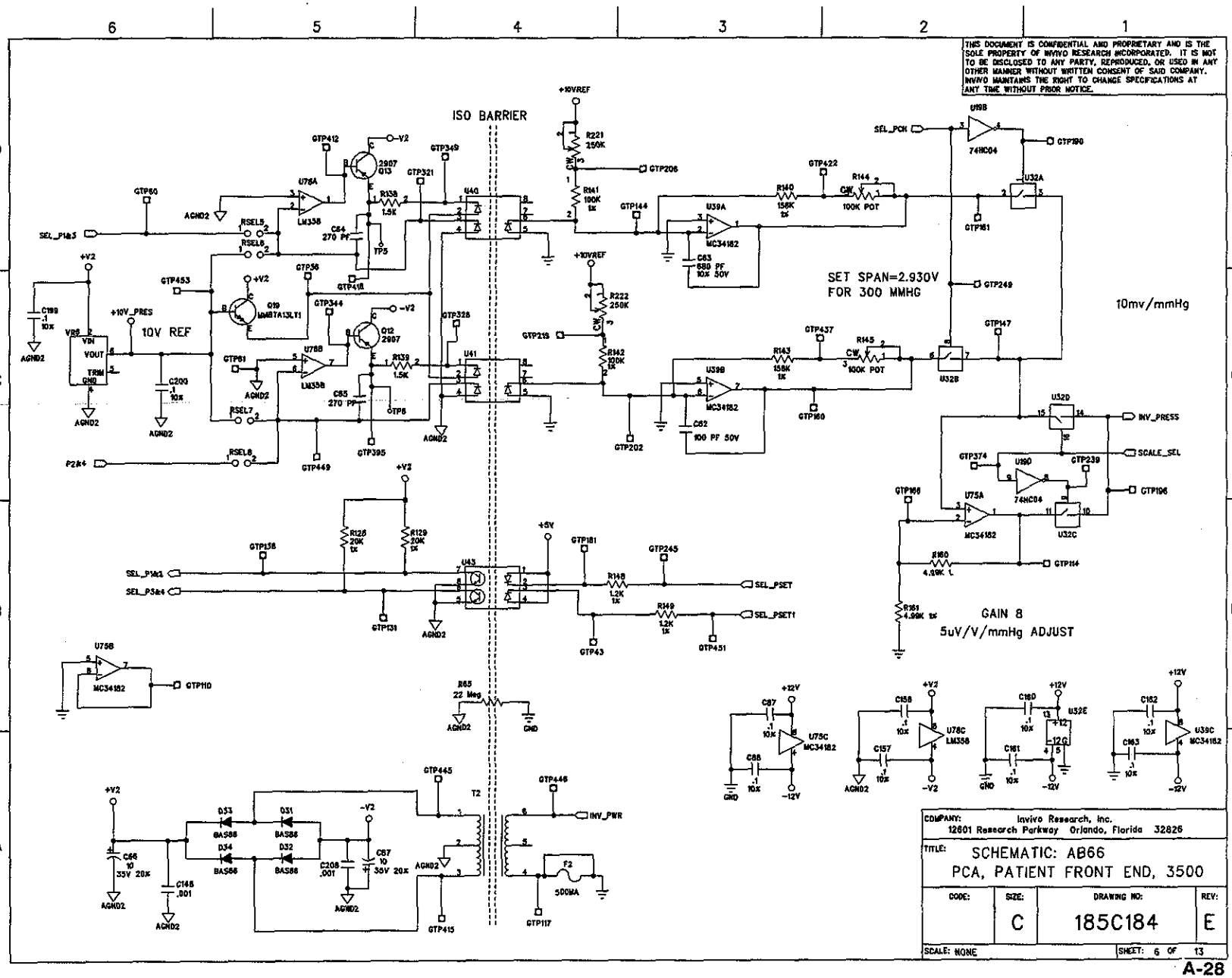


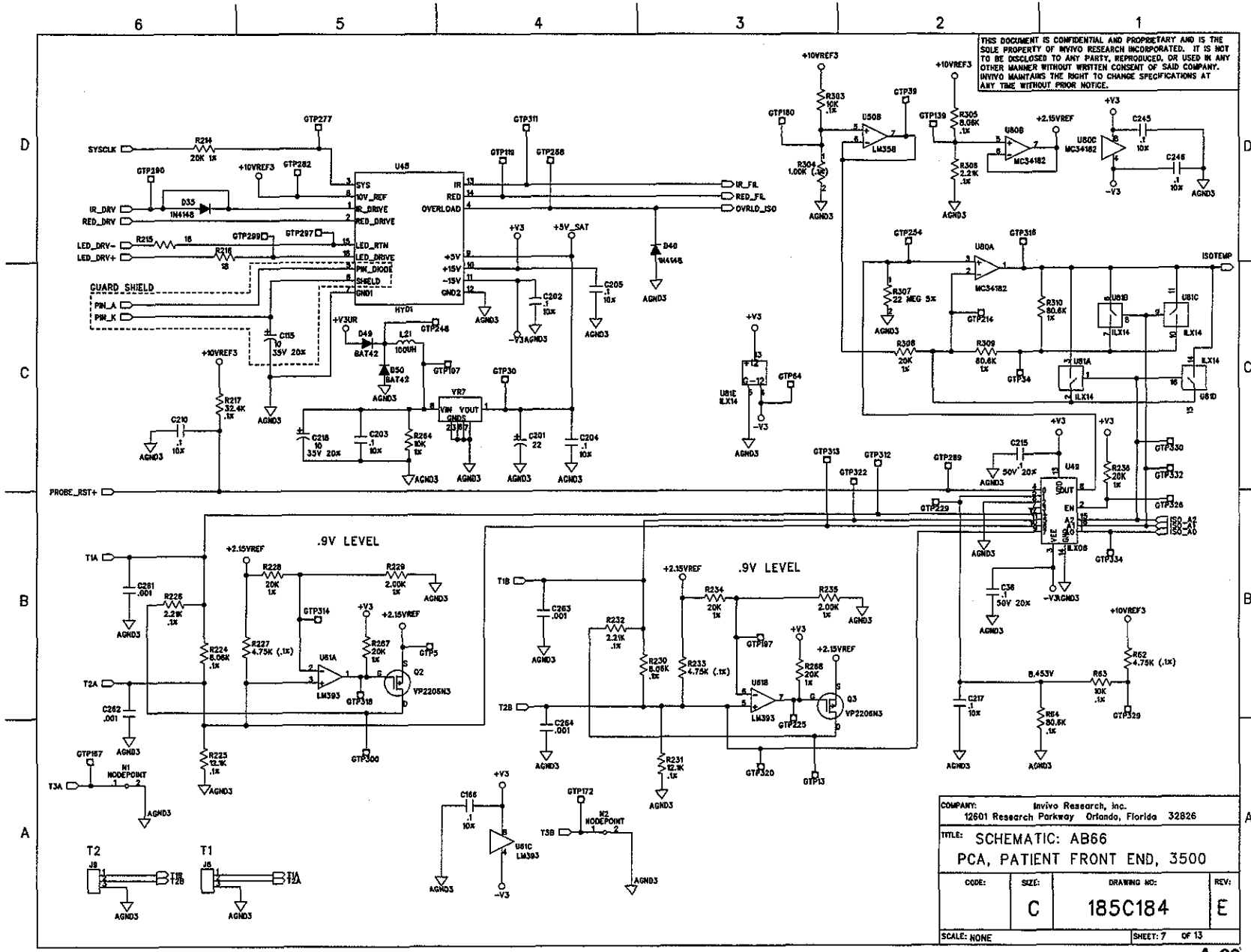
COMPANY:	Invivo Research, Inc. 12601 Research Parkway Orlando, Florida 32826		
TITLE:	SCHEMATIC: AB66 PCA, PATIENT FRONT END, 3500		
CODE:	SIZE: C	DRAWING NO: 185C184	REV: E
SCALE: NONE		SHEET: 4 OF 13	

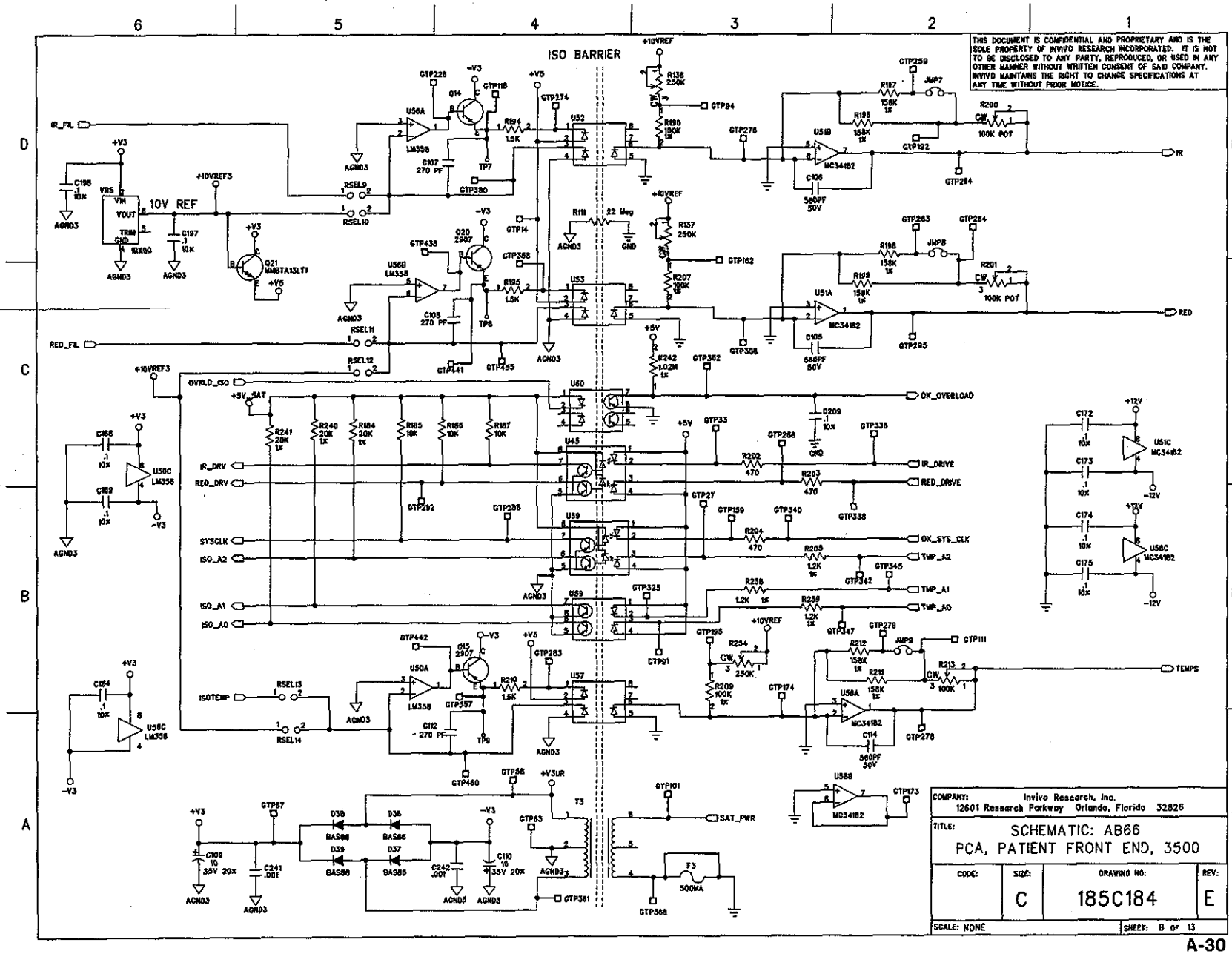
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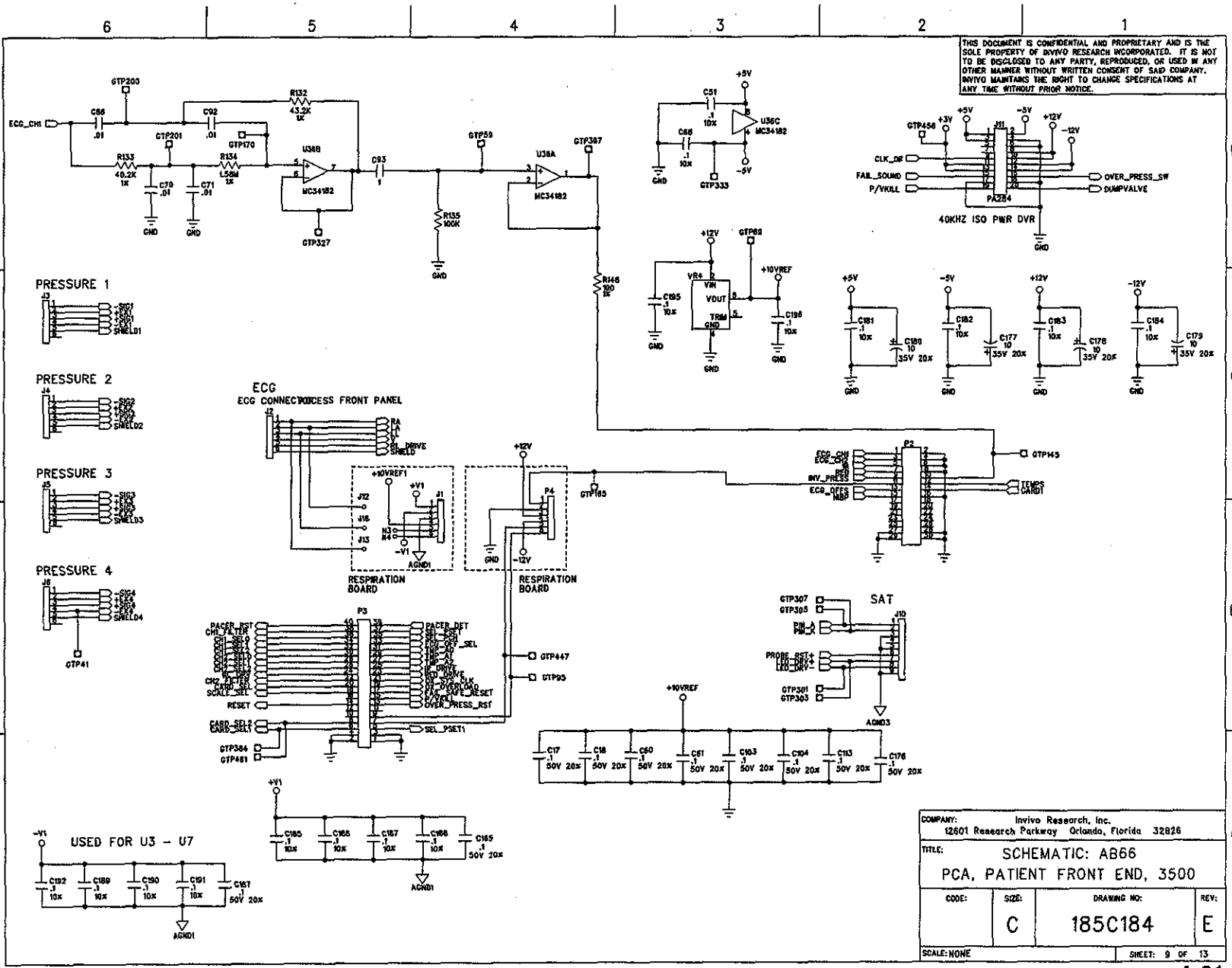


COMPANY:	Invivo Research, Inc. 12601 Research Parkway Orlando, Florida 32826	
TITLE:	SCHEMATIC: AB66 PCA, PATIENT FRONT END, 3500	
CODE:	SIZE: C	DRAWING NO: 185C184 REV: E
SCALE: NONE		SHEET: 5 OF 13

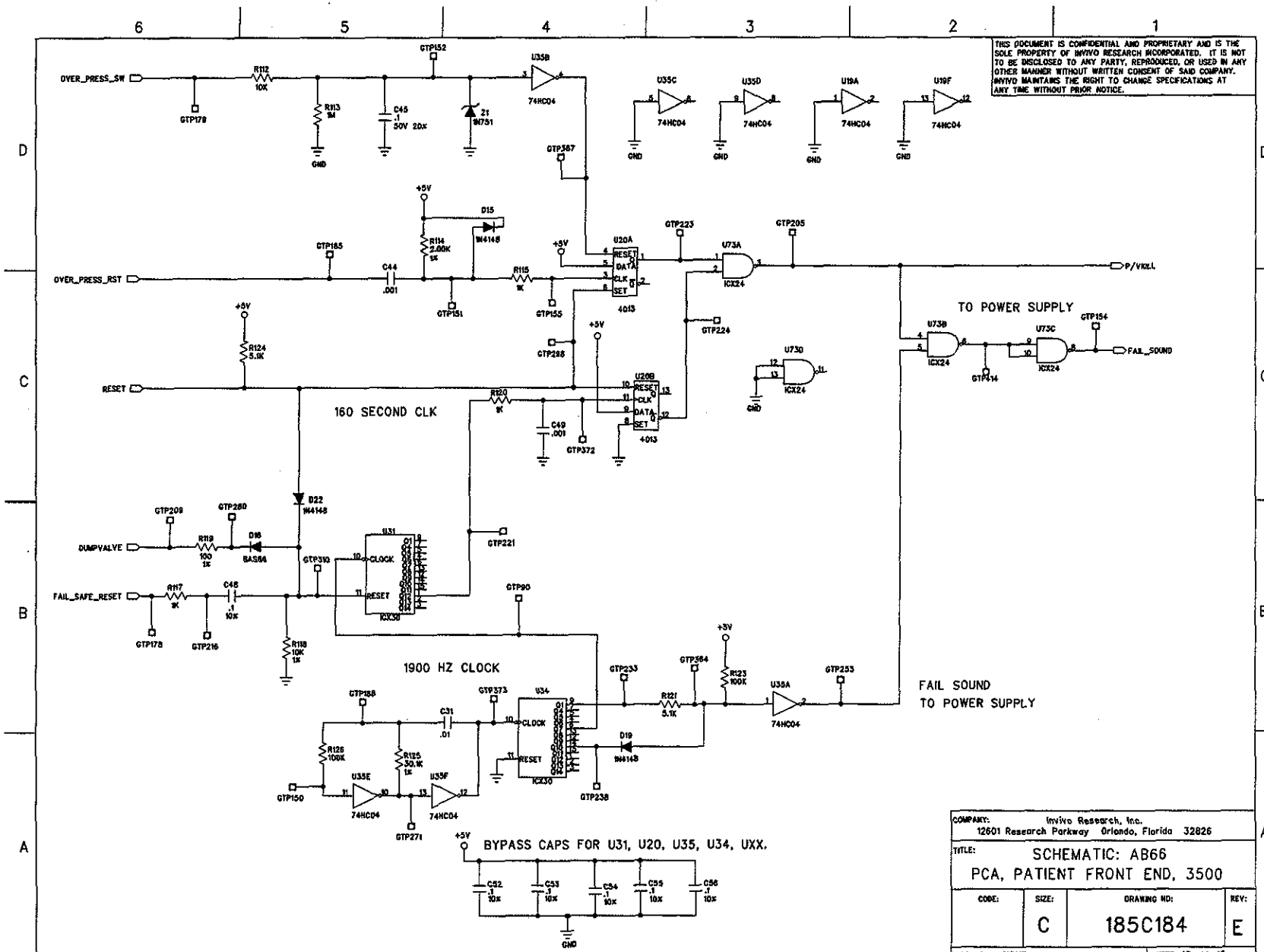

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ISO BARRIER
SET SPAN=2.930V FOR 300 MMHG
10mv/mmHg
10V REF
GAIN 8
5uV/V/mmHg ADJUST
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 6 OF 13


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.9V LEVEL
.9V LEVEL
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 7 OF 13


ISO BARRIER
10V REF
+10VREF
+10VREF3
+10VREF5
+V3
-V3
+V5
+5V
+5V_SAT
+12V
-12V
+V3SUR
AGND3
IR_FIL
RED_FIL
RSEL9
RSEL10
RSEL11
RSEL12
RSEL13
RSEL14
ISOTEMP
OVRLD_ISO
IR_DRV
RED_DRV
SYSCLK
ISO_A2
ISO_A1
ISO_A0
IR
RED
OX_OVERLOAD
IR_DRIVE
RED_DRIVE
OX_SYS_CLK
TMP_A2
TMP_A1
TMP_A0
TEMPS
SAT_PWR
U56A
U56B
U50A
U51A
U51B
U51C
U56C
U58A
U58B
U58C
U45
U50
U52
U53
U57
U59
U60
U89
LM358
MC34182
Q14
Q15
Q20
Q21
MMBTA13LT1
2907
T3
F3
500MA
BAS86
D36
D37
D38
D39
R136 250K
R137 250K
R187 158K 1%
R188 158K 1%
R189 158K 1%
R190 100K 1%
R194 1.5K
R195 1.5K
R196 158K 1%
R197 158K 1%
R198 158K 1%
R199 158K 1%
R200 100K POT
R201 100K POT
R207 100K 1%
R209 100K 1%
R210 1.5K
R211 158K 1%
R212 158K 1%
R213 100K
R240 20K 1%
R241 20K 1%
R242 1.02M 1%
R254 250K
R111 22 Meg
C105 560PF 50V
C106 560PF 50V
C107 270 PF
C108 270 PF
C112 270 PF
C114 560PF 50V
C197 .1 10%
C198 .1 10%
C209 .1 10%
C241 .001
C242 .001
C109 10 35V 20%
C110 10 35V 20%
JMP7
JMP8
JMP9
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COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 8 OF 13

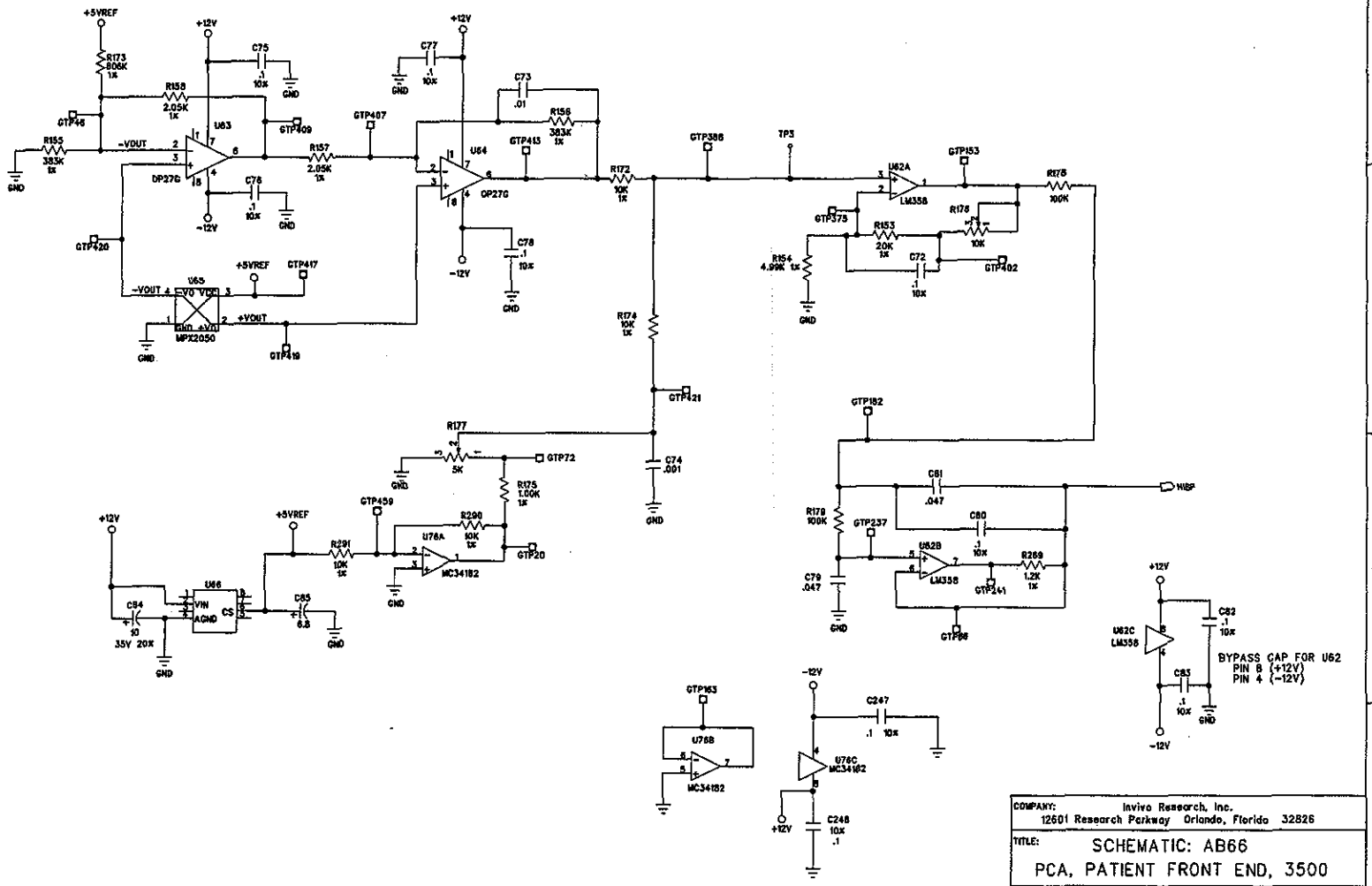

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PRESSURE 1
PRESSURE 2
PRESSURE 3
PRESSURE 4
ECG
ECG CONNECTOR ACCESS FRONT PANEL
RESPIRATION BOARD
RESPIRATION BOARD
SAT
40KHZ ISO PWR DVR
USED FOR U3 - U7
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 9 OF 13

A-31


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OVER_PRESS_SW
OVER_PRESS_RST
RESET
DUMPVALVE
FAIL_SAFE_RESET
160 SECOND CLK
1900 HZ CLOCK
TO POWER SUPPLY
FAIL SOUND
TO POWER SUPPLY
BYPASS CAPS FOR U31, U20, U35, U34, UXX.
P/VKILL
FAIL_SOUND
74HC04
4013
ICX24
ICX30
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 10 OF 13

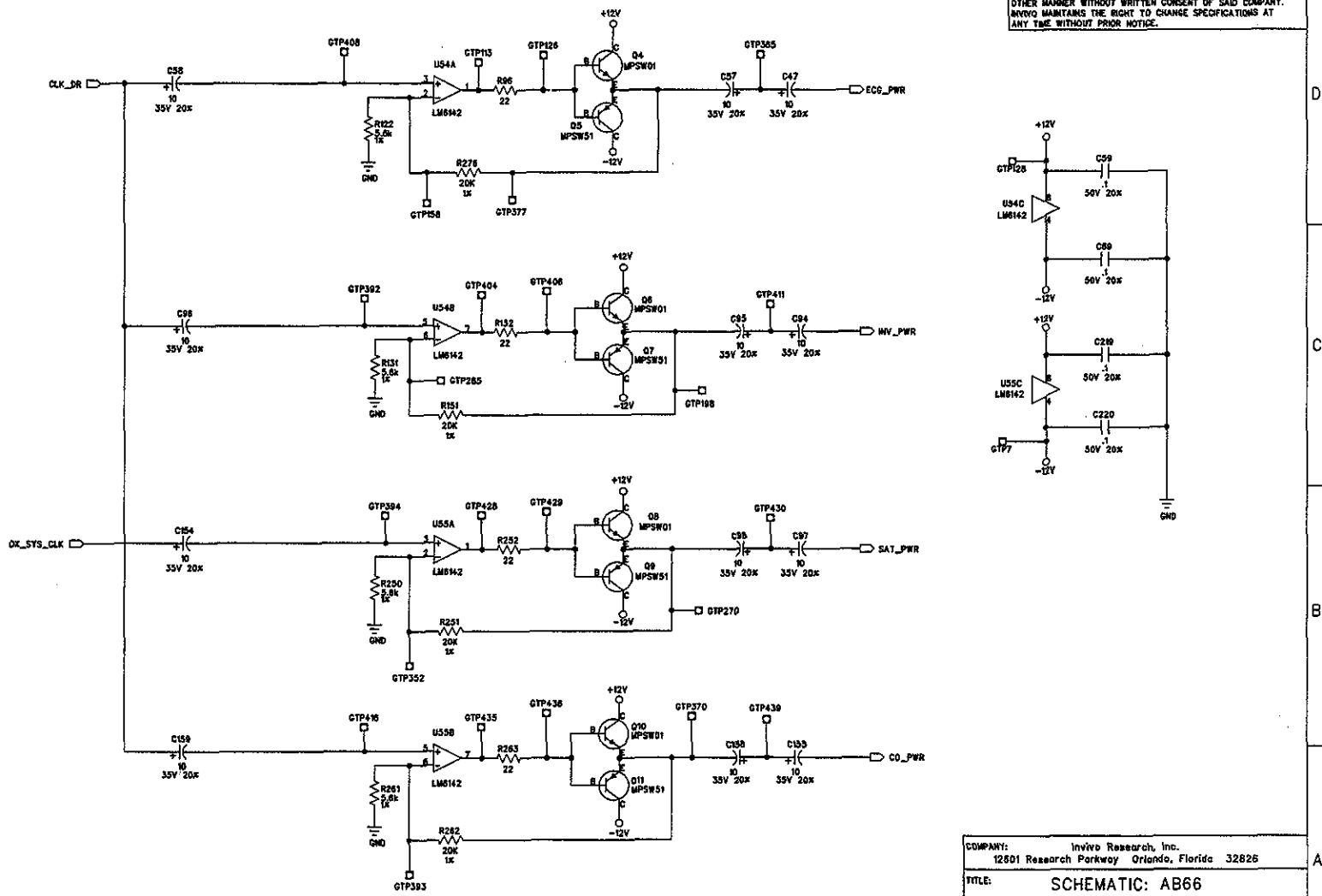
A-32

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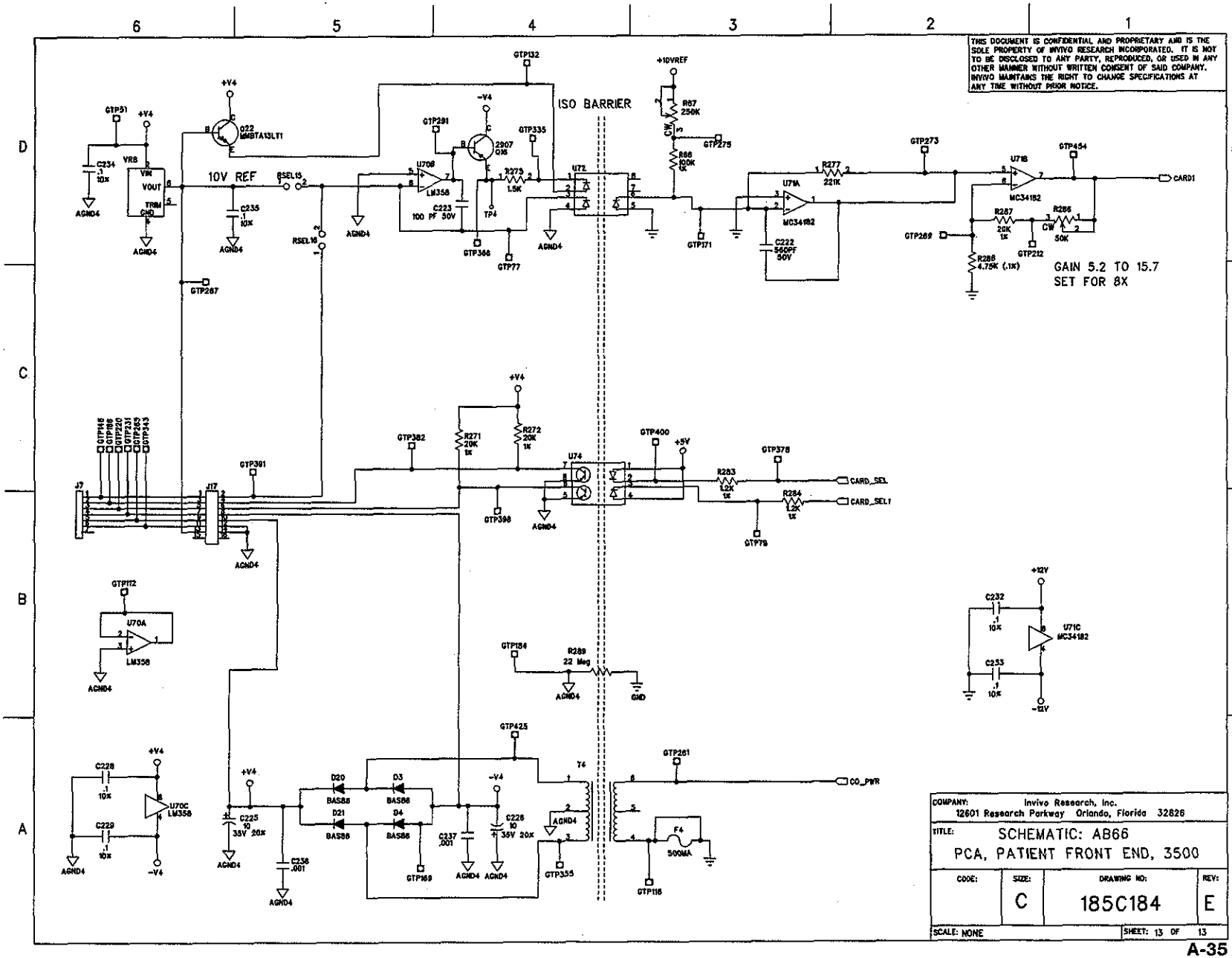


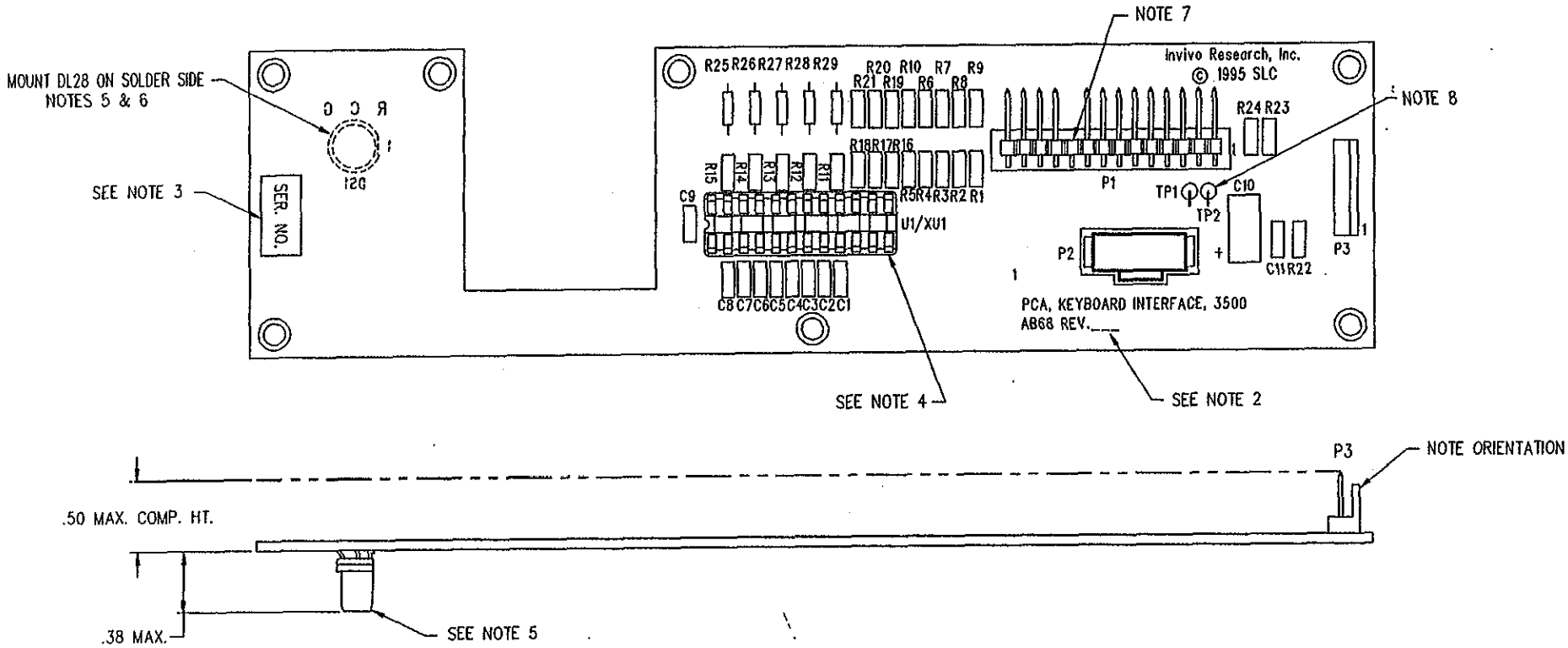
COMPANY:	Invivo Research, Inc. 12601 Research Parkway Orlando, Florida 32826		
TITLE:	SCHEMATIC: AB66 PCA, PATIENT FRONT END, 3500		
CODE:	SIZE: C	DRAWING NO: 185C184	REV: E
SCALE: NONE		SHEET: 11 OF 13	

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COMPANY:	Invivo Research, Inc. 12601 Research Parkway Orlando, Florida 32826		
TITLE:	SCHEMATIC: AB66 PCA, PATIENT FRONT END, 3500		
CODE:	SIZE: C	DRAWING NO: 185C184	REV: E
SCALE: NONE		SHEET: 12 OF 13	


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ISO BARRIER
10V REF
GAIN 5.2 TO 15.7
SET FOR 8X
CARD1
CARD_SEL
CARD_SEL1
CO_PWR
COMPANY: Invivo Research, Inc.
12601 Research Parkway Orlando, Florida 32826
TITLE: SCHEMATIC: AB66
PCA, PATIENT FRONT END, 3500
CODE:
SIZE: C
DRAWING NO: 185C184
REV: E
SCALE: NONE
SHEET: 13 OF 13



NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. U1 (AM40) TO BE INSTALLED AT FINAL ASSEMBLY.
5. CAREFULLY MODIFY DL28 BY GRINDING, FILING, ETC. TO DIMENSION SHOWN WHEN SOLDERED ON BOARD
6. CHECK FOR CONTINUITY BETWEEN DS1-P1 AND CENTER PIN AFTER DL28 HAS BEEN SOLDERED IN PLACE. THERE SHOULD BE NO CONNECTION
7. CUT PIN 10 FLUSH WITH CONNECTOR ON P1
8. BEND TO 45° IN DIRECTION SHOWN

NOTE 4

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
XU1	P030	1	SOCKET, 24 PIN DIP, .300 CTRS.
TP1,TP2	PA00	2	HEADER, UNSH, SR, 1 PIN (.10)
R25-29	R051	5	RES, 10 OHM, 5%, .25W, CF
R23,24	RX08	2	RES, 4.7K, .125W, 5%
R6-10, 19-22	RX58	9	RES, 20K, ±1%, .125W, SMD, 1206
R1-5, 11-18	RX23	13	RES, 1K, ±5%, .125W, 200 PPM, CHIP
P3	PA245	1	CONN, 6P, SR, HDR, ST, .100 CTRS
P2	PA285	1	CONN, 24P, DR. HDR., SHRD, .050 CTRS.
P1	PA246	1	CONN, 14P, SR, HDR, RA, (.100 CTRS)
DS1	DL28	1	LED, BI-COLOR, NEW RED/GREEN, T1.75
C10	CXT05	1	CAP, 10uF, 20%, 35V, SIZE D, TANT.
C1-9,11	CX07	10	CAP, 1uf, 20%, 50V, Z5U, CHIP, CER.
1	B144	1	PCB, KEYBRD. INTRFC., 3500 REV. B

REV.	DESCRIPTION	BY	DATE
D	PER ECN #4987	SLC	15APR96
C	PER ECN #4971M	SLC	14APR96
B	PER ECN #4800	CHY	3/7/96
A	RELEASED, ECN #4698	SLC	12/20/95
02	PROTOTYPE REVISION	SR	9/25/95
01	PROTOTYPE REVISION	CHY	6/16/94
E	PER ECN #5227	CHY	14AUG96

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
.XX = ± ___
.XXX = ± ___
ANGLES = ± ___

DRAWN	SR	12/20/95
DESIGNED	CN	6/16/94
CHECKED	RM	9/26/96
APPROVED	RM	8/26/96

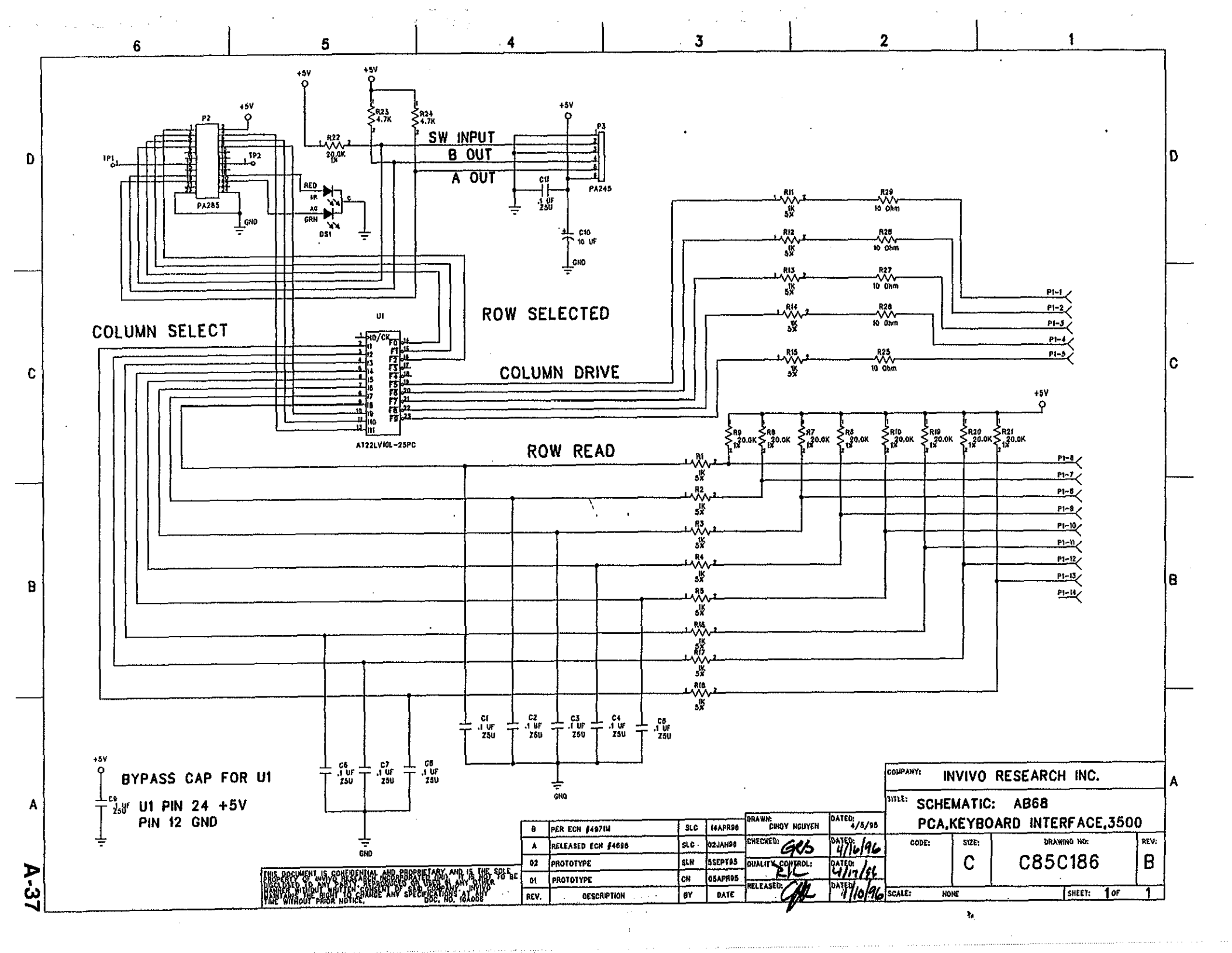
INCHES — THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE
ASSEMBLY: AB68
PCA, KEYBRD. INTRFC., 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	C94C650	E



REV.	DESCRIPTION	BY	DATE
B	PER ECN #4971M	SLC	14APR96
A	RELEASED ECN #4686	SLC	02JAN96
02	PROTOTYPE	SLH	5SEP95
01	PROTOTYPE	CN	05APR95

DRAWN: CINDY NGUYEN DATED: 4/5/95
CHECKED: GRS DATED: 4/16/96
QUALITY CONTROL: RVC DATED: 4/17/96
RELEASED: DATED: 4/10/96

COMPANY: INVIVO RESEARCH INC.
TITLE: SCHEMATIC: AB68
PCA,KEYBOARD INTERFACE,3500
CODE: SIZE: C DRAWING NO: C85C186 REV: B
SCALE: NONE SHEET: 1 OF 1

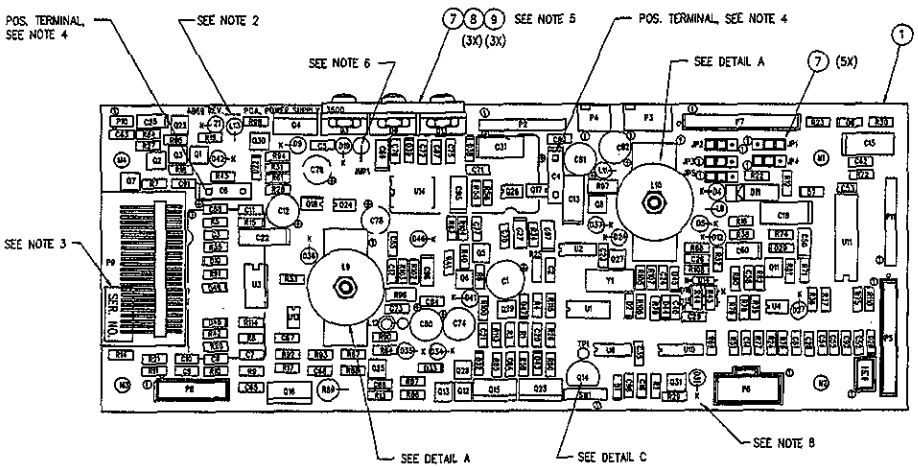
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ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
Z1	DZ13	1	ZENER, 1N5246B, 16V, 500MW
Y1	XC10	1	CRYSTAL, 8.00 MHZ
U14	IRX06	1	I.C., REG, DL W.T. SW, 3.3V/+5V, SSOP
U13	ILX09	1	I.C., OP-AMP, DL LMPWR, SO8, LM358
U11	IR07	1	SG3525AN PULSE WIDTH MODULATOR
U10	ICX03	1	COUNTER, DUAL, DEC, SO16, 74HC390
U6	ICX18	1	I.C., DUAL D FLP-FLP, CD4013BCM
U4	ILX22	1	I.C., OP. AMP, DUAL LW. PWR, CMOS
U3	IL80	1	IC, 8P DIP, AUDIO POWER AMP, LM380
U2	ICX19	1	I.C., QUD. 2-INPT. NAND, CD4093BCM
U1	ICX51	1	IC, 16P, MULTIVBRATOR, MONOSTABLE, CMOS
TP1	PA00	1	HEADER, UNSH, SR, 1 PIN (.10)
SW1	S021	1	SW, SLIDE INCA-2
R107	RX52	1	RES, 8.2K, 5%, .125W, 200PPM
R97	RX203	1	RES, .015 OHM, 10%, 1W, 75PPM, 2010
R96	RX197	1	RES, .05 OHM, 5%, .125W, 400PPM, 2010
R93	RX57	1	RES, 10K, 1%, .125W, SMD, 1206
R89	R177	1	RES, .33 OHM, 5%, 1W, M.O.
R86	RX22	1	RES, 6.2K, 5%, .125W, 200PPM, CHIP
10	N002	3	NUT, HEX, #4-40, ZN
9	NS04	3	SCR, #4-40 X 1/4 LG. PHMS-XR, ZN

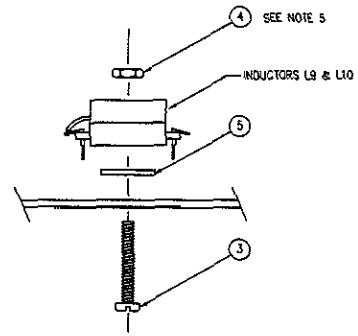
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
8	HM50AL	1	HEAT SINK, POWER SUPPLY, 3500
R79	RX53	1	RES, 33K, 5%, .125W, 200PPM
R78	RX20	1	RES, 470 OHM, 5%, .125W, 200PPM, CHIP
R75,92	RX175	2	RES, 6.81K, 1%, .125W, 100PPM, 1206
R74	RX182	1	RES, 3K, 5%, .125W, 200PPM, 1206
R71	RX123	1	RES, 39 OHM, 5%, .25W, 200PPM, 1206
R63,76	RX150	2	RES, 4.99K, 1%, .125W, 100PPM, 1206
R58	RX193	1	RES, 9.1K, 5%, .125W, 220V, 1206
R56	RX202	1	RES, 475K, 1%, .125W, 100PPM, 1206
R55	RX17	1	RES, 100K, 1%, .125W, 200PPM, CHIP
R51	RX48	1	RES, 240K, 5%, .125W, 200PPM, CHIP
R20,R45	RX179	2	RES, 2.7K, 5%, .125W, 200PPM, 1206
R40,43	RX96	2	RES, 220K, 5%, .125W, 200PPM, 1206
R39	RX158	1	RES, 150K, 5%, .125W, 200PPM, 1206
R84,98,103	RX42	3	RES, 100 OHM, 5%, .125W, 200PPM, CHIP
R32,33	RX70	2	RES, 10 OHM, 5%, .125W, 200PPM, 1206
R25	RX180	1	RES, 75K, 5%, .125W, 200PPM, 1206
R22,30	RX58	2	RES, 20K, 1%, .125W, SMD, 1206
R16	RX26	1	RES, 10 MEG, 5%, .125W, 200PPM, CHIP
R15	RX186	1	RES, 2.7 OHM, 5%, .125W, 600PPM, 1206
R13,60,91	RX63	3	RES, 1K, 1%, .125W, SMT, 1206
R12,18	RX183	2	RES, 750 OHM, 5%, .125W, 200PPM, 1206

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
7	PA66	5	SHUNT, 2 POSITION
R27	RX77	1	RES, 680 OHM, 5%, .125W, 200PPM, 1206
R4,7,17,42 R24,26,29,61 R100,102,115	RX00	11	RES, 100K, 5%, .125W
R38	RX07	1	RES, 15K, 5%, .125W, 1206
R6	RX25	1	RES, 470K, 5%, .125W, 200PPM, CHIP
R8,19,36,37, R64,68,77, R80,87,88, R104,110,113, R114	RX40	14	RES, 10K, 5%, .125W, 200PPM, CHIP
R9,65,67,69, R85,90,94, R105,106	RX12	9	RES, 2.2K, 5%, .125W
R10	RX187	1	RES, 1.5K, 5%, .125W, 200PPM, 1206
R11,14,23,108 R21,28,82	RX02	7	RES, 1K, 5%, .125W
6	HI37	1	INSULATOR, CRYSTAL, MYLAR
5	NW31	2	WASHER, .125 ID X .500 OD X .062 THK, NY
4	N009	2	NUT, HEX, #4-40, NY
3	NS21	2	SCREW, #4-40 X 3/4" LG. PHMS-NY

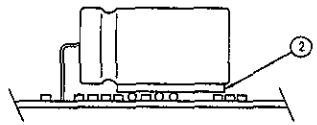
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
R2,5,31,44,61,72	RX06	6	RES, 4.7K, 5%, .125W
R1,3,34,35,41,70	RX01	6	RES, 1 MEG, 5%, .125W
Q17,18,24,26	QX09	4	TRANS, N-CHNL, POWER MOSFET, SO-8
Q15,23	Q036	2	TIP120 NPN DARLINGTON
Q14	Q003	1	TRANS, FET, N-CHNL, TO-92, VN10KM
Q8	QX13	1	TRANS, N-CHNL,ENHANCEMENT-MODE MOS
Q5	QX01	1	TRANS, PNP,SIL, SO23, TYPE 2907A
Q4,16	Q026	2	D44H11 NPN SILICON POWER PAK
Q2,3,22	QX08	3	TRANS, NPN DARLINGTON, SOT23
Q1,6,7,11,12 Q13,25,27-31	QX00	12	TRANS, NPN, SIL, 2023, TYPE 2222
P10	PA49	1	HEADER, UNSH, SR, 2 PIN (.10)
P9	PA268	1	CONN, 30P, SR, HDR, RA, .039 CTRS.
P8	PA271	1	CONN, 16P, DR, HDR, ST, .079 CTRS.
P6	PA284	1	CONN, 20P, DR, HDR, SHRD, .050 CTRS.
P5,7	PA272	2	CONN, 10P, SR, HDR, ST, SHRD, (.098)
P4	PA249	1	WEADER, UNSHD, SR, 2 PIN (.156)
P3	PA29	1	HEADER, UNSHD, SR, 3 PIN, (.156)
P2,11	PA291A	2	CONN, 8P, SR, HDR, ST, .100 CTRS.
P1	PA194	1	CONN, 2P, SR, HDR, ST, .098 CTRS.
L8,11,12,13	T058	4	BEAD, .370 FERRITE, LEADED, 22 GA
L9,10	T063	2	INDUCTOR, 16uH, POT CORE
JP1-5	PA08	5	HEADER, UNSH, SR, 3 PIN, (.10)
D11	D009	1	DIODE, GENERAL PURPOSE, 1N5818
D42	DZ04	1	ZENER, 1N753A, 6.2V, 5%, 500MW
D36,37,46	D008	3	DIODE, SCHOTTKY, 1 AMP, 40V
D34,35	D015	2	RECTIFIER, 1N4935, 200V
D27,41	DD03	2	DIODE, SCHOTTKY, 1N5711
D24	D004	1	DIODE, LOW LEAKAGE, 1N458A
D14,15,16	D000	3	DIODE, SIGNAL, 1N4148
D19,31	DZ20	2	TRANSORBE, SA30A, 30V
D9	DZ02	1	ZENER, 1N750A, 4.7V, 500MW
D4,5,12	D001	3	DIODE, 1N4001
D3,8,13	D030	3	DIODE, SCHOTTKY, 7.5 AMP, 45V
D1,2,6,7,10,22, D28,29,32,33, D38,39,43,44, D45,47,48,49	DDX01	18	DIODE, SIGNAL, LEADLESS, 500MW
C78,79	CT22	2	CAP, 33uF, 10%, 35V, RADIAL, TANT.
C77,92,40	CX09	3	CAP, 100pF, 10%, 50V, COG, CHIP, CER.
C60,85	CXT12	2	CAP, 4.7uF, 20% 16V, TANT, 3528 PKG
C54,75,75,28	CX13	4	CAP, .001uF, 10%, 50VDC, X7R, CHIP
C53	CX31	1	CAP, 2200pF, 10%, 50V, X7R, 0805, CHIP
C10,52,76,87	CX37	4	CAP, 20uF, 10%, 50V, COG, CER, 1206
C98	CX44	1	CAP, .33UF,+80% -20% Y5V, 50V, 1206
C26	CX34	1	CAP, 220pF, 5%, 50V, NPO, 1206, SMD
C25,27,50, C69,96,97	CXT04	6	CAP, 1uF, 20%, 35VDC, CHIP, TANT.
C23,24	CX25	2	CAP, 22pF, 5%, X7R, 50V, 1206, SMD
C22	CXT02	1	CAP, 6.8uF, 20%, 35V, CHIP, TANT.
C20	CX08	1	CAP, .0068uF, 5%, 50V, X7R, CHIP, CER.
C15,18	CXT11	2	CAP, 68uF, 20%, 10V, SIZE D, TANT.
C13,31	CXT05	2	CAP, 10uF, 20%, 35V, SIZE D, TANT.
C12,74,80, C81,82	CA34	5	CAP, 220uF, 20%, 10V, ALUM, RAD.
C83,84	CX29	2	CAP, .1uF, 5%, 50V, X7R, 1206, CHIP
C4,6	CA36	2	CAP, 4700uF, 20%, 25V, MINI, ALUM, RAD.
C3,5,29, C70,85,88	CX11	6	CAP, .01uF, 10%, 50V, CHIP, CER.
C2,7,8,9, C11,14,16,17, C21,35, C55,58,61-68, C71,72,91	CX22	23	CAP, .1uF, 10%, 50V, X7R, 1206 CHIP
C1	CT23	1	CAP, 47uF,10%, 35V, RAD, TANT.
2	M000	2.0	TAPE, OPN, CL, FM, DS, .06 THK, X .38 WD.
1	0145	1	PCB, POWER SUPPLY, 3500 REV. B
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION



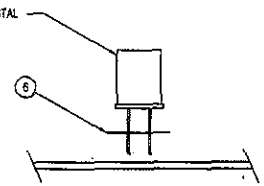
COMPONENT SIDE



DETAIL A



DETAIL B



DETAIL C

NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. C4 AND C6 TO BE BENT OVER PARALLEL TO PCB AS SHOWN IN DETAIL B. PLACE A 1.00 INCH PIECE OF FOAM TAPE (ITEM 2) ON THE UNDERNEATH SIDE OF C4 AND C6.
5. ADD ONE DROP OF LOCTITE 425 (M050) TO END OF SCREW BEFORE INSTALLING NUT.
6. INSTALL JUMPER WIRE ACROSS PADS ⊕ JMP1.
7. MAXIMUM COMPONENT HEIGHT OF ANY COMPONENT NOT TO EXCEED .815 .
8. THE "K" INDICATOR ON DIODES DENOTES CATHODE END.

REV.	DESCRIPTION	BY	DATE
F	PER ECN #5199	SR	02/08/96
E	PER ECN #5156	SLC	11/13/95
D	PER ECN #4854	JRB	4/28/95
C	PER ECN #4682M	SLC	12/08/95
B	PER ECN #4832	JRB	2/16/95
A	RELEASED, ECN #4631	SLN	11/14/95
02	PROTOTYPE REVISION	SR	8/28/95
01	PROTOTYPE REVISION	SLN	8/22/95

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE: XX = ± — ; XXX = ± — ; ANGLES = ± —

DRAWN	SR	8/20/95
DESIGNED	SLN	8/22/95
CHECKED	JRB	9/26/95
APPROVED	JRB	9/26/95

THIRD ANGLE PROJECTION

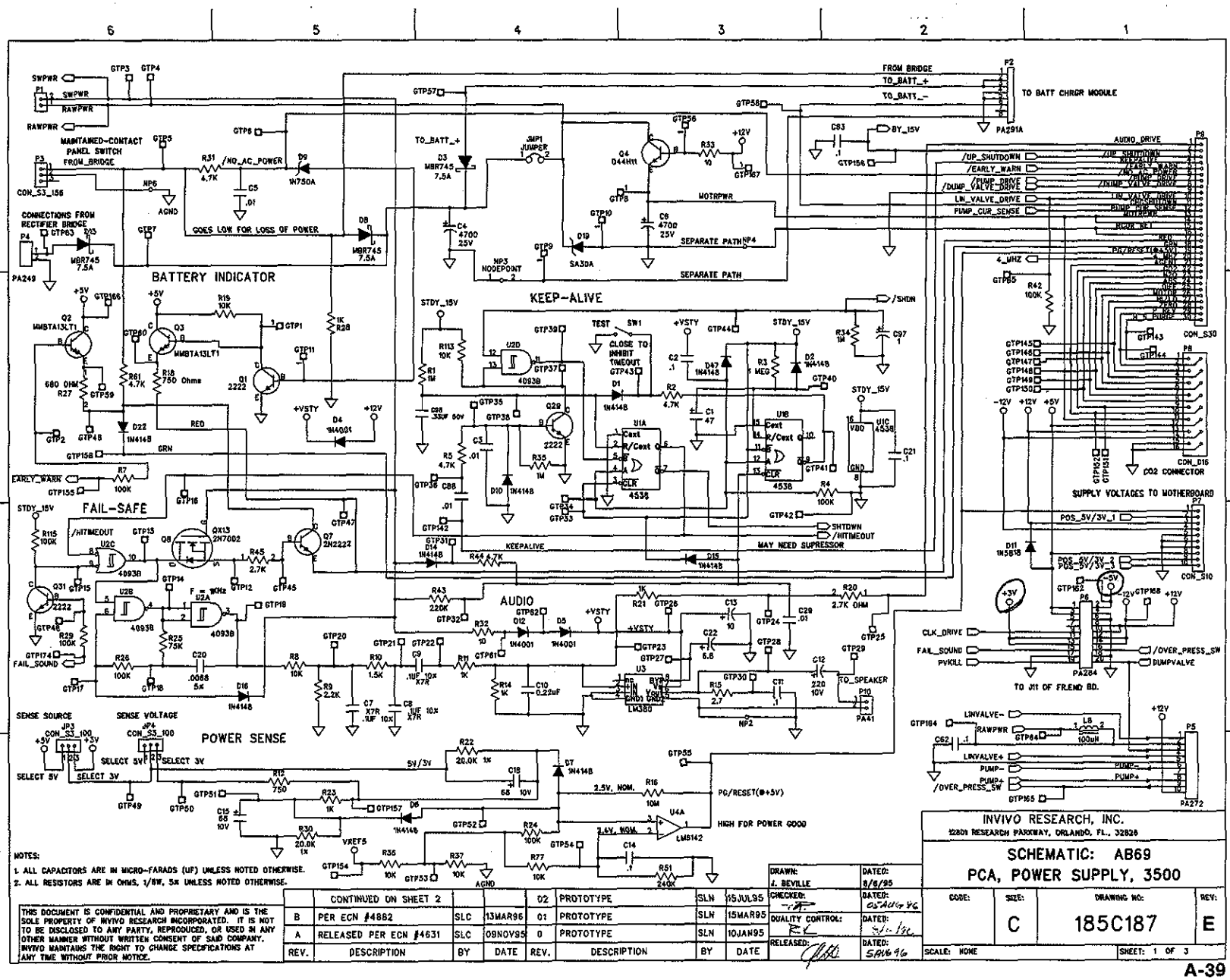
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PRECISION BIOMETRICAL INSTRUMENTS
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

SIZE: B

ASSEMBLY: AB69
PCA, POWER SUPPLY, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	194D651	F



NOTES:
1. ALL CAPACITORS ARE IN MICRO-FARADS (UF) UNLESS NOTED OTHERWISE.
2. ALL RESISTORS ARE IN OHMS, 1/8W, 5% UNLESS NOTED OTHERWISE.

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REV.	DESCRIPTION	BY	DATE	REV.	DESCRIPTION	BY	DATE
	CONTINUED ON SHEET 2			02	PROTOTYPE	SLN	15JUL95
B	PER ECN #4882	SLC	13MAR95	01	PROTOTYPE	SLN	15MAR95
A	RELEASED PER ECN #4631	SLC	09NOV95	0	PROTOTYPE	SLN	10JAN95

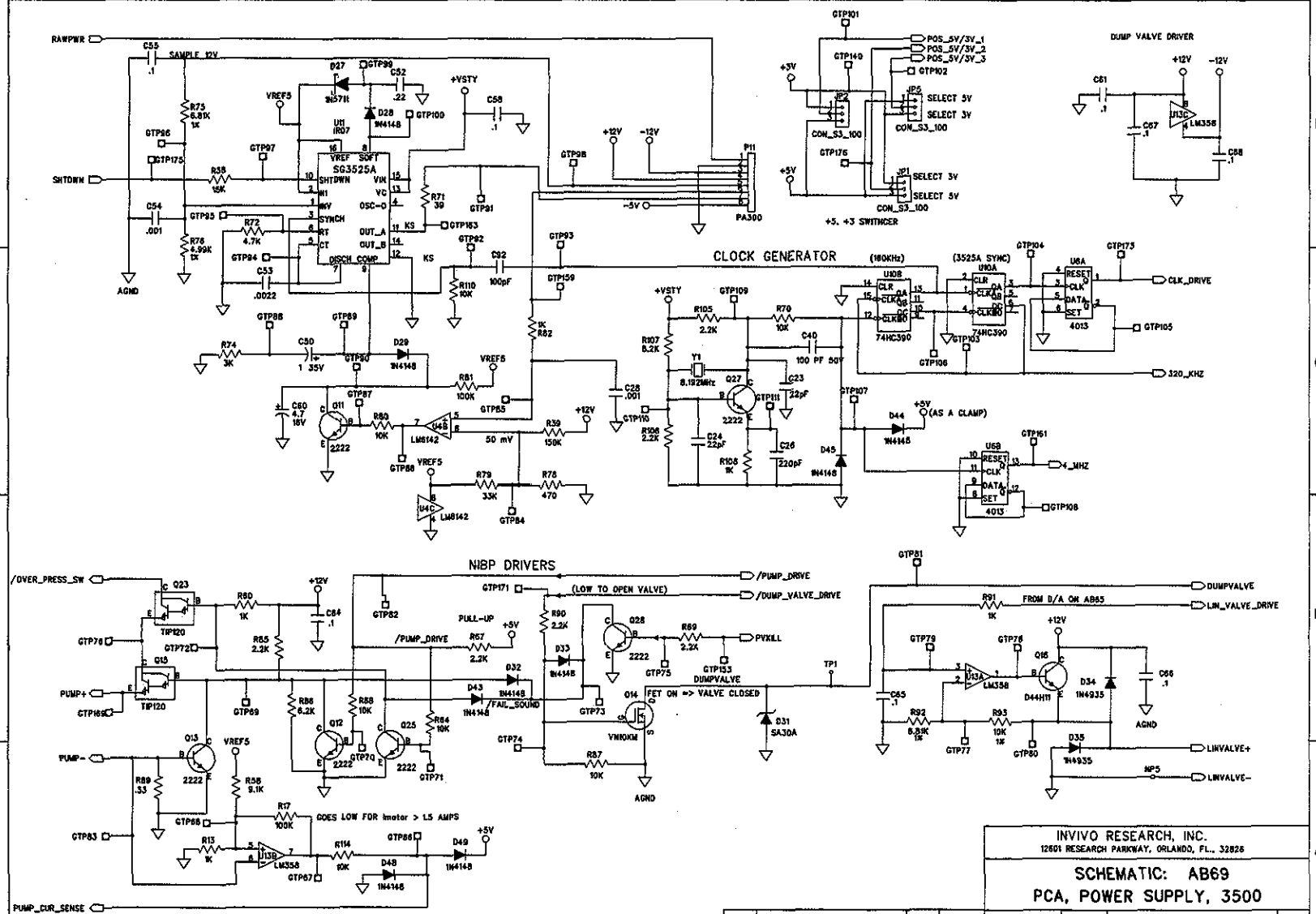
DRAWN: J. BEVILLE	DATED: 8/6/95	
CHECKED:	DATED: 05AUG96	
QUALITY CONTROL:	DATED: 5/1-/96	
RELEASED:	DATED: 5AUG96	

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SCHEMATIC: AB69
PCA, POWER SUPPLY, 3500

CODE:	SIZE:	DRAWING NO:	REV:
	C	185C187	E

SCALE: NONE | SHEET: 1 OF 3



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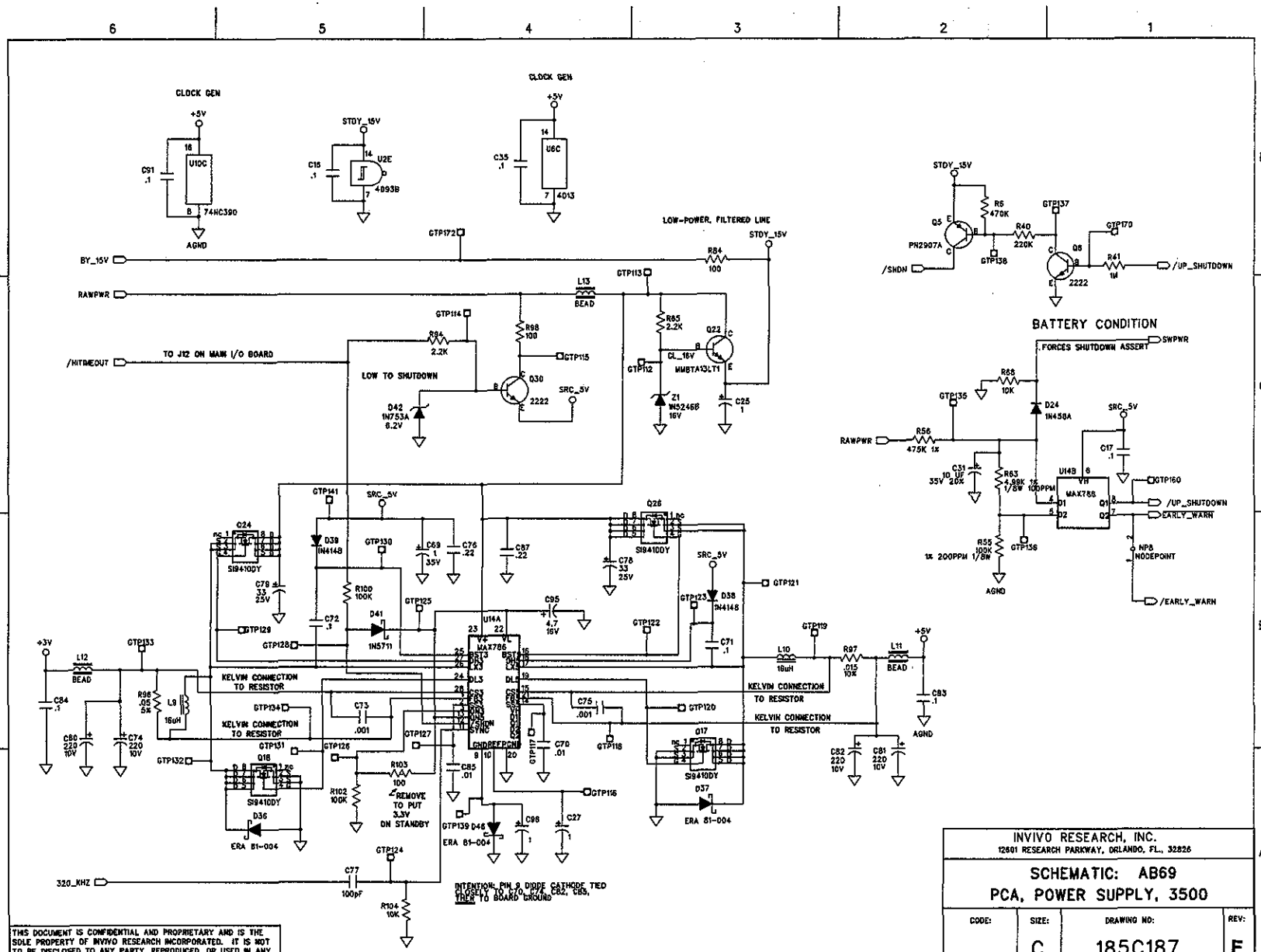
REV.	DESCRIPTION	BY	DATE
E	PER ECN #5199	RHK	02AUG96
D	PER ECN #5156	SLC	15JUL96
C	PER ECN #4854	JRB	4/16/96

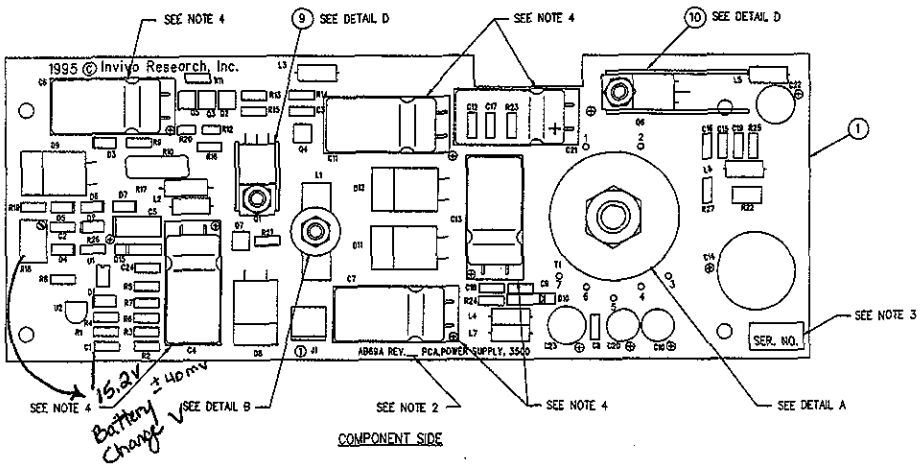
INVIVO RESEARCH, INC.
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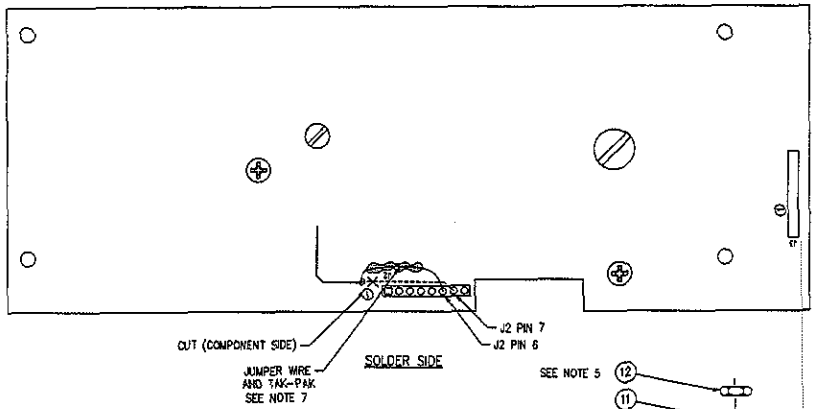
SCHEMATIC: AB69
PCA, POWER SUPPLY, 3500

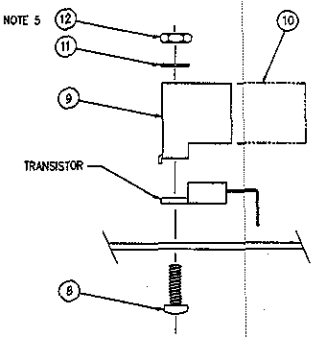
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	C	185C187	E

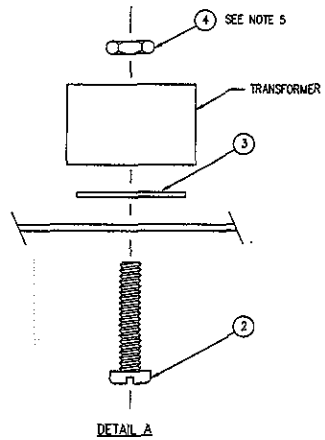
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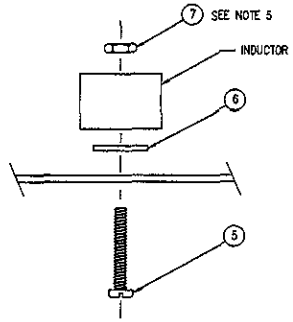

CLOCK GEN
+5V
U1DC
74HC390
AGND
STDY_15V
U2E
4093B
CLOCK GEN
U6C
4013
LOW-POWER, FILTERED LINE
BY_15V
RAWPWR
/HITIMEOUT
TO J12 ON MAIN I/O BOARD
LOW TO SHUTDOWN
MMBTA13LT1
BATTERY CONDITION
FORCES SHUTDOWN ASSERT
/SHDN
/UP_SHUTDOWN
/EARLY_WARN
NODEPOINT
MAX786
SI9410DY
ERA 81-004
1N5711
1N4148
1N4458
320_KHZ
KELVIN CONNECTION TO RESISTOR
REMOVE TO PUT 3.3V ON STANDBY
INTENTION: PIN 9 DIODE CATHODE TIED CLOSELY TO C70, C74, C82, C85, THEN TO BOARD GROUND
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INVIVO RESEARCH, INC.
12601 RESEARCH PARKWAY, ORLANDO, FL., 32826
SCHEMATIC: AB69
PCA, POWER SUPPLY, 3500
CODE:
SIZE: C
DRAWING NO: 185C187
REV: E
SCALE: NONE
SHEET: 3 of 3

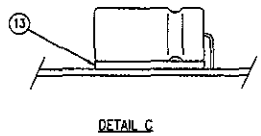












NOTES:

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN
4. C4, C6, C7, C11, C13, AND C21 TO BE BENT OVER PARALLEL TO PCB AS SHOWN IN DETAIL C
   PLACE A 1.00 INCH PIECE OF FOAM TAPE (ITEM 12) ON THE UNDERNEATH SIDE OF EACH CAP
   MOUNT C21 OPPOSITE OF POLARITY SHOWN ON SILKSCREEN
5. ADD ONE DROP OF LOCTITE ASSURE (M050) TO END OF SCREW BEFORE INSTALLING NUT
6. MAXIMUM COMPONENT HEIGHT OF ANY COMPONENT NOT TO EXCEED .915
7. ON COMPONENT SIDE, CUT TRACE COMING FROM J2 PIN 7 AS SHOWN. ADD JUMPER WIRE FROM VIA TO J2 PIN 6. APPLY LOCTITE "TAK-PAK" #382 (M107) TO SECURE JUMPER WIRE.

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
R12	RX212	1	RES, 619 OHM, 1%, .125W, 100PPM, 0805
D15	DZ13	1	ZENER, 1N5246B, 16V, 500MW
U2	IR09	1	REGULATOR, POSITIVE, LM317LZ
U1	ILX07	1	OP AMP, LWPWR/FET INPT, 34182, SO8
T1	T056	1	TRANSFORMER, POWER
R26	RX77	1	RES, 680 OHM, 5%, .125W, 200PPM, 1206
R23,24,25	RX49	3	RES, 330 OHM, 5%, .125W, 200PPM, 1206
R22	RX188	1	RES, .01 OHM, 1%, 1W, 75 PPM, 2512
R19	RX83	1	RES, 1K, 1%, .125W, 1206 SMD
R18	RP80	1	RES, 2K POT, 10%, .5W, 25T, TOP ADJUST.
R17	R188	1	RES, 1.5 OHM, 5%, 1W, METAL OXIDE
R16	RX02	1	RES, 1K, .125W, 5%, 1206 SMD
R15	RX183	1	RES, 750 OHM, 5%, .125W, 200PPM, 1206
R13,14	RX20	2	RES, 470 OHM, 5%, .125W, 200PPM, 1206
R20	RX191	1	RES, 162 OHM, .1W, 1%, 0805 SMD
R11	RX21	1	RES, 20K, 5% .125W, 200PPM, 1206
R10	R079	1	RES, 5.1 OHM, 5%, 1/4W, 5% CARBON FILM
R9	RX182	1	RES, 3K, 5%, .125W, 200PPM, 1206 SMD
R8	RX180	1	RES, 75K, 5%, .125W, 200PPM, 1206 SMD
R6	RX46	1	RES, 1.2 MEG, 5% .125W, 200PPM, 1206
R5,7	RX01	2	RES, 1 MEG, 5% .125W
R4	RX57	1	RES, 10K, 1%, .125W, SMD, 1206
R3,21,27	RX40	3	RES, 10K, 5%, 125W, 200PPM, CHIP
R2	RX181	1	RES, 12K, 5%, 125W, 200PPM, 1206
R1	RX54	1	RES, 240 OHMS, 5%, .125W, 200PPM
Q6	Q056	1	TRANS, N-CHNL, PWR. MOSFET, TO-220
Q4,5	QX01	2	TRANS, PNP, SIL, SO23, TYPE 2907A
Q2,3,7	QX00	3	TRANS, NPN, SIL, SO23, TYPE 2222
Q1	Q026	1	D44H11 NPN SILICON POWER PAK
L2-7	T058	6	BEAD, 370 FERRITE, LEADED, 22 GA
L1	T057	1	INDUCTOR, 47UH, POT CORE
J2,3	PA291B	2	CONN, 8P, SR, RECPT, ST, .100 CTRS
J1	PA253	1	HEADER, FRTN. LCK, SR, 2P (.156)
D10	D008	1	DIODE, SCHOTTKY, 1A, 40V
D8,9,11,12	D030	4	DIODE, SCHOTTKY, 7.5 A, 45V
D1-7	DDX01	7	DIODE, SIGNAL, LEADLESS, 500MW
C22,23	CA32	2	CAP, 100uF, 20%, 25V, MINI ALUM, RAD.
C19	CX38	1	CAP, .01uF, 20%, 100V, Z5U, 1206, CER.
C17,18	CX11	2	CAP, .01uF, 10%, 50V, X7R, CHIP, CER.
C14	CA29	1	CAP, 2200uF, 20%, 25V, ALUM, RAD.
C10,20	CA34	2	CAP, 220mF, 20%, 10V, ALUM, RAD.
C5	CXT05	1	CAP, 10uF, 20%, 35V, SIZE D, TANT.
C4,6,7,11,13,21	CA35	6	CAP, 1000uF, 20%, 25V, MINI ALUM, RAD.
C3	CX23	1	CAP, 1500pF, 5%, NPO, 50V, 1206 SMD
C1,2,8,9,12, 15,16,24	CX22	8	CAP, .1uF, 10%50V, X7R, 1206 CHIP
13	M000	6.0	TAPE, OPN, CL, FM, DS, .06 THK. X .38 WD.
12	N002	2	NUT, HEX, #4-40, ZN
11	NW09	2	LOCKWASHER, IT, SS, #4 X .200 X .020
10	HM59B	1	HEAT SINK, TO220, LARGE
9	HM59A	1	HEAT SINK, TO220, SMALL
8	NS26	2	SCR, #4-40 X 3/8 LG, PHMS-XR, ZN
7	N009	1	NUT, HEX, #4-40, NY
6	NW31	1	WASHER, .125 ID X .500 OD X .062 THK, NY
5	NS21	1	SCR, #4-40 X 3/4 LG, PHMS-NY
4	N030	1	NUT, HEX, #10-32, NY
3	NW30	1	WASHER, .222 ID X 1.00 OD X .040 THK, NY
2	NS92	1	SCR, #10-32 X 1" LG., PHMS-NY
1	B145A	1	PCB, PWR SWTCHR/BAT CHRGR, 3500 REV. A

REV.	DESCRIPTION	BY	DATE
E	PER ECN #5173M	SLC	19JUL96
D	PER ECN #5151M	SLC	03JUL96
C	PER ECN #5062M	CHY	5/22/96
B	PER ECN #4818	CHY	3/5/96
A	RELEASED, ECN #4631	SLN	11/14/95
01	PROTOTYPE REVISION	SR	8/26/95

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: .XX = ± .010, .XXX = ± .005, ANGLES = ± 1°

DRAWN	SR	8/18/95
DESIGNED	SN	8/18/95
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]

THIRD ANGLE PROJECTION

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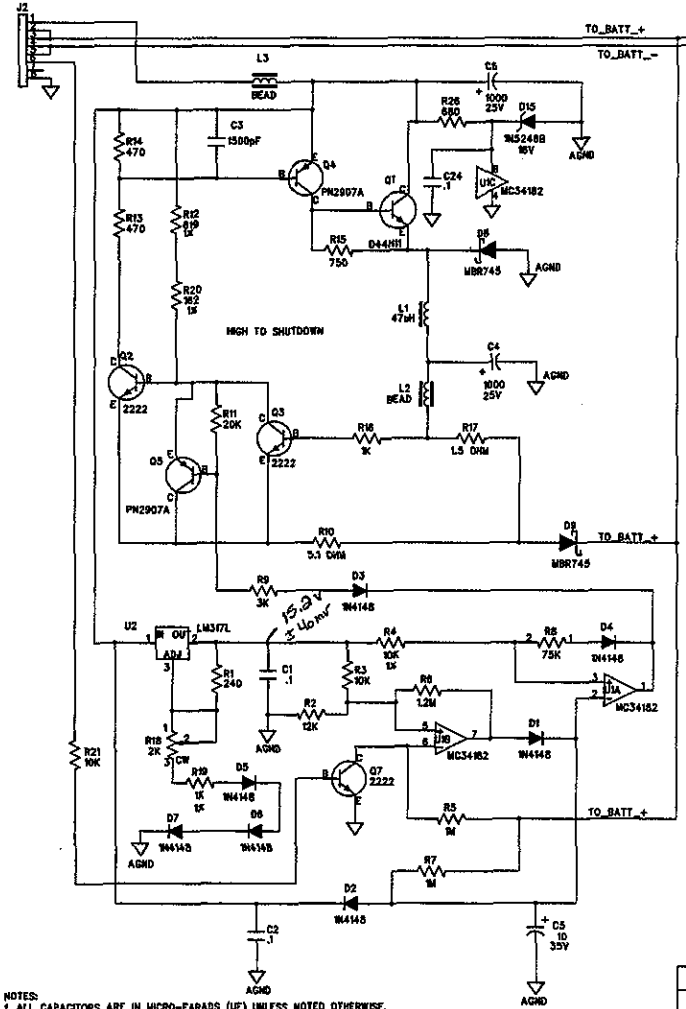
Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

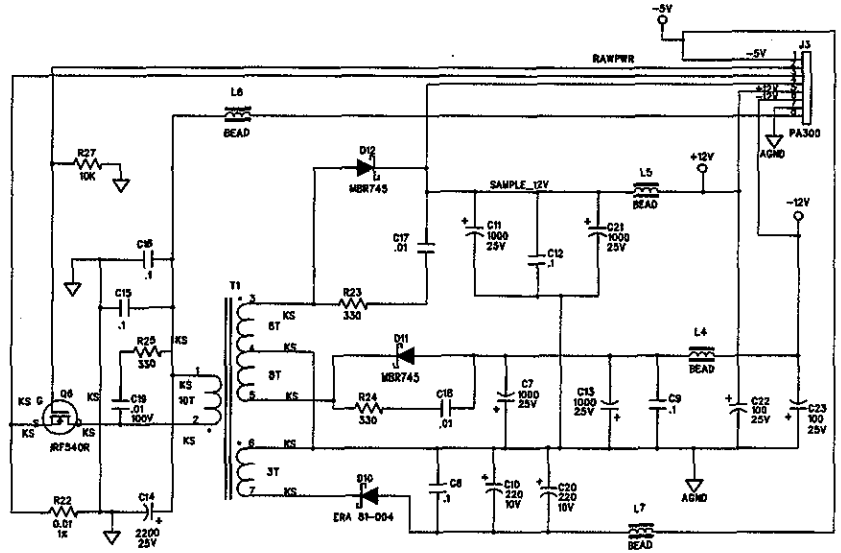
TITLE: ASSEMBLY: AB59A
PCA, PWR SWTCHR/BAT CHRGR, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	1940680	E

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BATTERY CHARGER





+12, -12, -5 SWITCHER

REV.	DESCRIPTION	BY	DATE
B	PER ECN #5173M	SLC	19JUL96
A	RELEASED PER ECN #4631	SLC	15DEC95
01	PROTOTYPE	SLN	15JUL95
0	PROTOTYPE	SLN	10MAR95

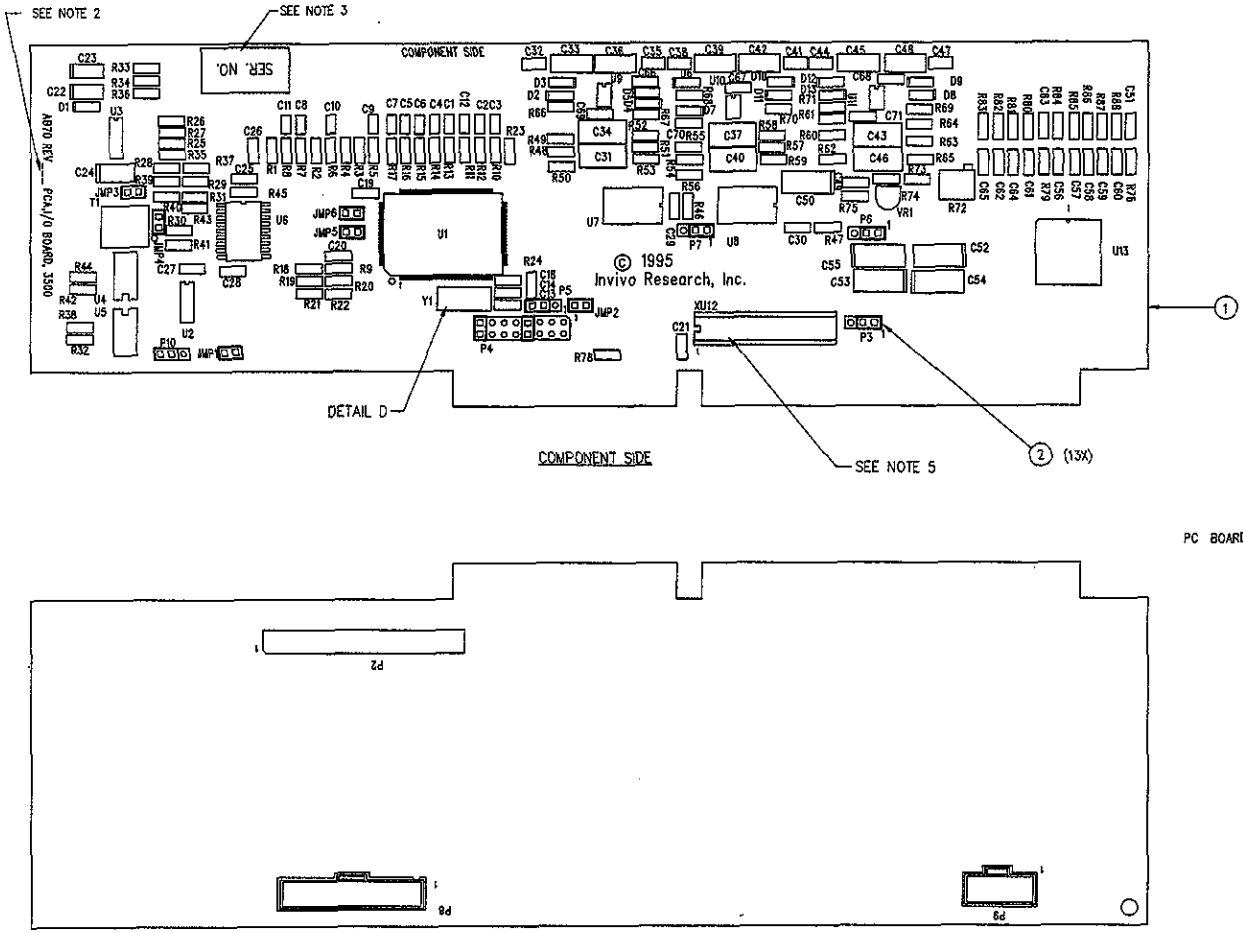
DRAWN: S. NEW DATED: 2/21/95
CHECKED: J.Bailie DATED: 25JUL96
QUALITY CONTROL: DATED:
RELEASED: DATED: 24JUL96

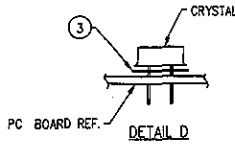
COMPANY: INVIVO RESEARCH, INC.
12601 RESEARCH PARKWAY, ORLANDO, FL., 32826

TITLE: SCHEMATIC: AB69A PCA, POWER SWITCHER/BATTERY CHRGR, 3500

CODE:	SIZE:	DRAWING NO:	REV:
	C	185C197	B

SCALE: NONE SHEET: 1 OF 1





NOTE 5 (REF)

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
Y1	XC20	1	CRYSTAL, 24 MHZ
VR1	IR09	1	REGULATOR, POSITIVE, LM317LZ
U13	INX02	1	I/O, PARALLEL, 8255, CMOS, 44PLCC
U9-11	ILX09	3	IC, OP-AMP, DL. LWPWR, SO8, LM358
U7-8	ILX20	2	IC, CNVTR, (ILX20A-MAXIM ONLY)
U6	ICX31	1	IC, RS232 DRV/RCV. W/SHDN, LT1039
U4-5	IL62	2	ISOLATOR, OPTO, DUAL CHANNEL
U3	ICX40	1	ISO RS232 DRVR, MAX251, 14P, SOIC
U2	ICX41	1	ISO RS232 DRVR, MAX250, 14P, SOIC
U1	ICX43	1	CNTRLR, I/O-PERIPH, 82C735, 80SMT
XU12	P032	1	SOCKET, 24 PIN DIP, LOW-PROFILE, .300
T1	T048	1	TRANSFORMER, SERIAL ISO, BH MINI
R74	RX147	1	RES, 200 OHM, 1%, .125W, 100PPM, CH
R73	RX121	1	RES, .499 OHM, 1/4W, 1%, 100PPM, 1206
R72	RP71	1	RES, POT, 200 OHM, 10%, .25W, CERM
R66-71,76	RX42	7	RES, 100 OHM, 5%, 1/8W, 200PPM, 1206
R50,53,56,59, R62,65	RX140	6	RES, 12.1K, 1/8, 1%, 100PPM, 1206
R48,49,51,52, R54,55,57,58, R60,61,63,64	RX158	12	RES, 150K, 5%, 1/8W, 200PPM, 1206
R46-47	RX70	2	RES, 10 OHM, 5%, 1/8W, 200PPM, 1206
R45	RX50	1	RES, 22K, 5%, .125W, 200PPM, CHIP
R33-36,39-41, R43,78	RX58	9	RES, 20K, 1/8W, 1%, 100PPM, 1206
R32,38,42,44	RX84	4	RES, 5.1K, .125W, 1%, 1206
R25-31,37	RX24	8	RES, 22 OHM, +/-5%, .125W, 200PPM, CP
R23	RX170	1	RES, 150 OHM, 1/4W, 5%, 200PPM, 1206
R18-22	RX23	5	RES, 1K, 5%, .125W, 200PPM, CHIP
R10-17,75, R79-86	RX91	19	RES, 220 OHM, 5%, 200PPM, 1/8W, 1206
R5-8	RX141	4	RES, 33 OHM, 1/8W, 5%, 200PPM, 1206
R1-4,9,24	RX08	6	RES, 4.7K, .125W, +/-5%
P9	PA284	1	CONN, 20P, DR, HDR, SHRD, .050 CTRS
P8	PA276	1	CONN, 40P, DR, HDR, SHRD, .050 CTRS
P4	PA35	1	HEADER, UNSH, DR, 16 PIN, (.10)
P3,5-7,10	PA08	5	CONN, 3P, SR, HDR, ST, UNSHRD, (.10)
P2	PA119	1	CONN, 34P, DR, HDR, ST, UNSH, (.10)
JMP1-6	PA49	6	HEADER, UNSH, SR, 2 PIN, (.10)
D1-13	DDX01	13	DIODE, SIGNAL, LEADLESS, 500MW
C56-65	CX13	10	CAP, .001UF, 10%, 50VDC, X7R, CHIP
C50,52-55	CXT05	5	CAP, 10UF, 20%, 35V, SIZE-D, TANT
C33,36,39,42, C45,48	CP31	6	CAP, .033UF, 5%, 50V, POLYEST
C32,35,38,41, C44,47	CP07	6	CAP, .01UF, 2%, 50V, POLYEST
C31,34,37,40, C43,46	CP36	6	CAP, .33UF, 5%, 50VDC, POLYESTER
C24	CXT12	1	CAP, 4.7UF, 20%, 16V, TANT, 3528 PKG
C18-21,25-30, C49,51,66-71	CX22	18	CAP, .1UF, 10%, 50V, X7R, 1206, CHIP
C22,23	CXT04	2	CAP, 1uF, 20%, 35VDC, CHIP, TANT.
C13,14	CX25	2	CAP, 22PF, 5%, X7R, 50V, 1206
C1-12	CX31	12	CAP, 2200PF, 10%, 50V, X7R, 0805, CHIP
3	HI37	1	INSULATOR, CRYSTAL, MYLAR
2	PA66	13	SHUNT, 2 POSITION
1	B146	1	PCB, MULTI-FUNCTION I/O, 3500 REV. C

NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. MAXIMUM COMPONENT HEIGHT OF ANY COMPONENT NOT TO EXCEED .580 .
5. U12 (AM45) TO BE INSTALLED AT FINAL ASSEMBLY.
6. LAY OVER C31, 34, 37, 40, 43 AND 46 TOWARDS TOP OF BOARD AS MUCH MUCH AS COMPONENTS WILL ALLOW.
7. LAY OVER P3, P6 AND P7 TOWARDS GOLD FINGERS SO THAT PARTS ARE APPROX. 45° FROM BOARD SURFACE.

REV.	DESCRIPTION	BY	DATE
G	PER ECN #5200	RHK	01AUG98
F	PER ECN #5163M	SLC	17JUL96
E	PER ECN #4972M	CHY	4/16/96
D	PER ECN #4895	JRB	3/20/96
C	PER ECN #4827	SLC	2/21/96
B	PER ECN #4745	JRB	1/17/96
A	RELEASED, ECN #4695	SLC	12/18/95

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: .XX = ± —, .XXX = ± —, ANGLES = ± —

DRAWN	R. KEMP	11/8/95
DESIGNED	SLN	11/8/95
CHECKED		
APPROVED		

THIRD ANGLE PROJECTION

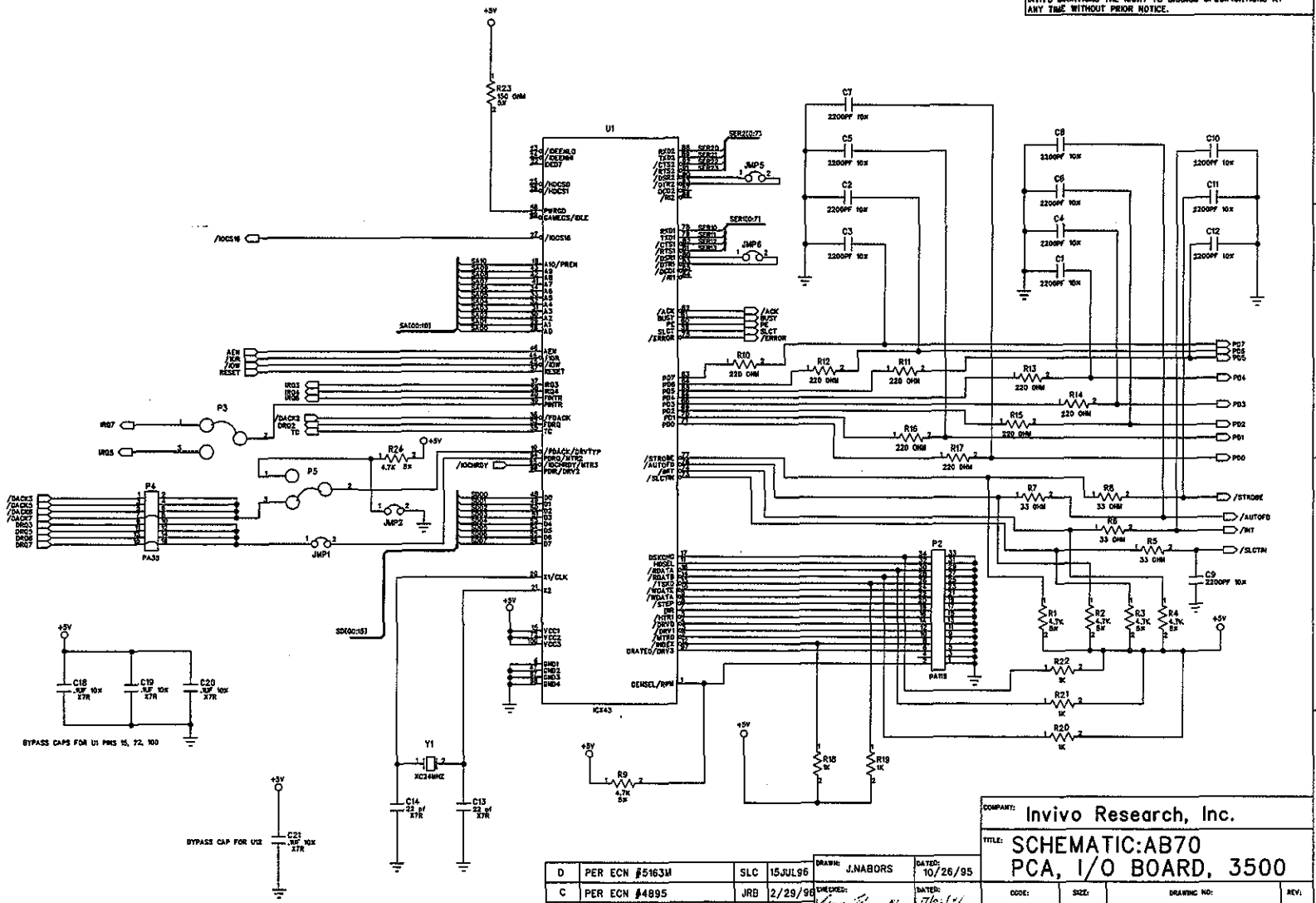
DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE: ASSEMBLY: AB70
PCA, MULTI-FUNCTION I/O, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2:1	1 of 1	194D652	G

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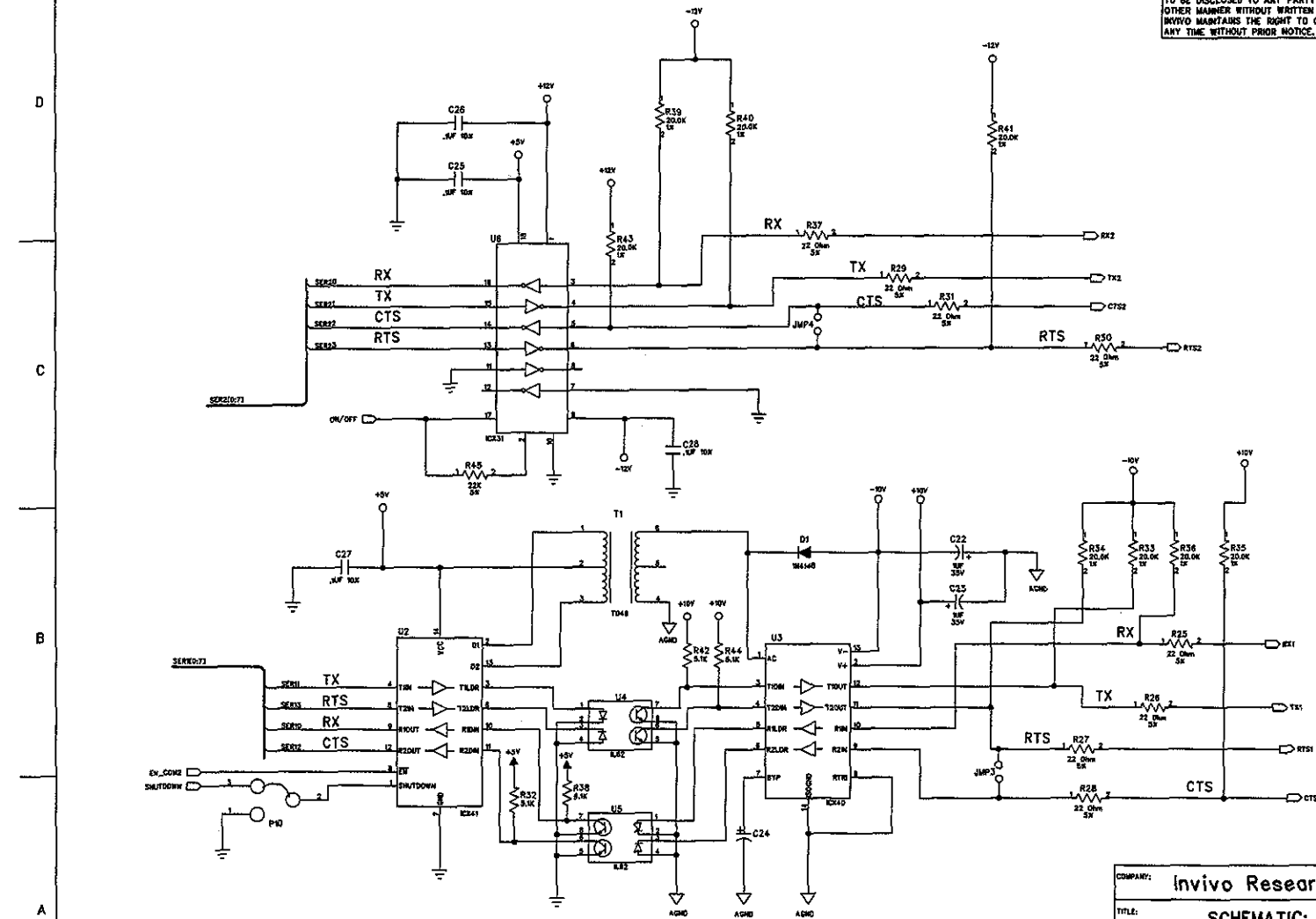


REV.	DESCRIPTION	BY	DATE
D	PER ECN #5163M	SLC	15JUL96
C	PER ECN #4895	JRB	2/29/96
B	PER ECN #4827	SLC	2/23/96
A	RELEASED ECN #4695	SLC	18DEC95

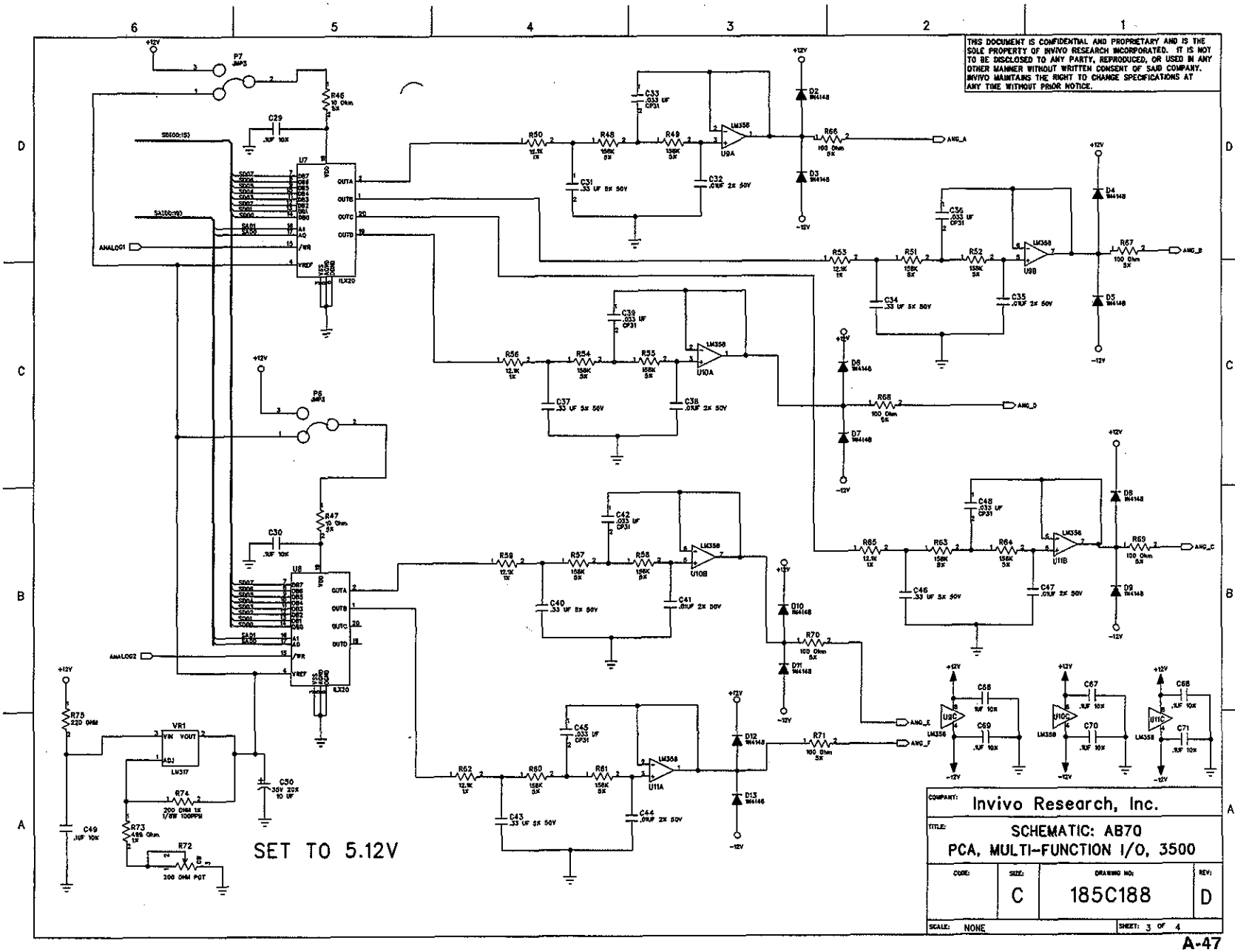
DRAWN: J.NABORS DATED: 10/26/95
CHECKED: DATED: 7/8/96
QUALITY CONTROL: DATED:
RELEASED: DATED: 24JUL96

COMPANY: Invivo Research, Inc.
TITLE: SCHEMATIC:AB70
PCA, I/O BOARD, 3500
CODE: SIZE: C DRAWING NO: 185C188 REV: D
SCALE: NONE SHEET: 1 OF 4

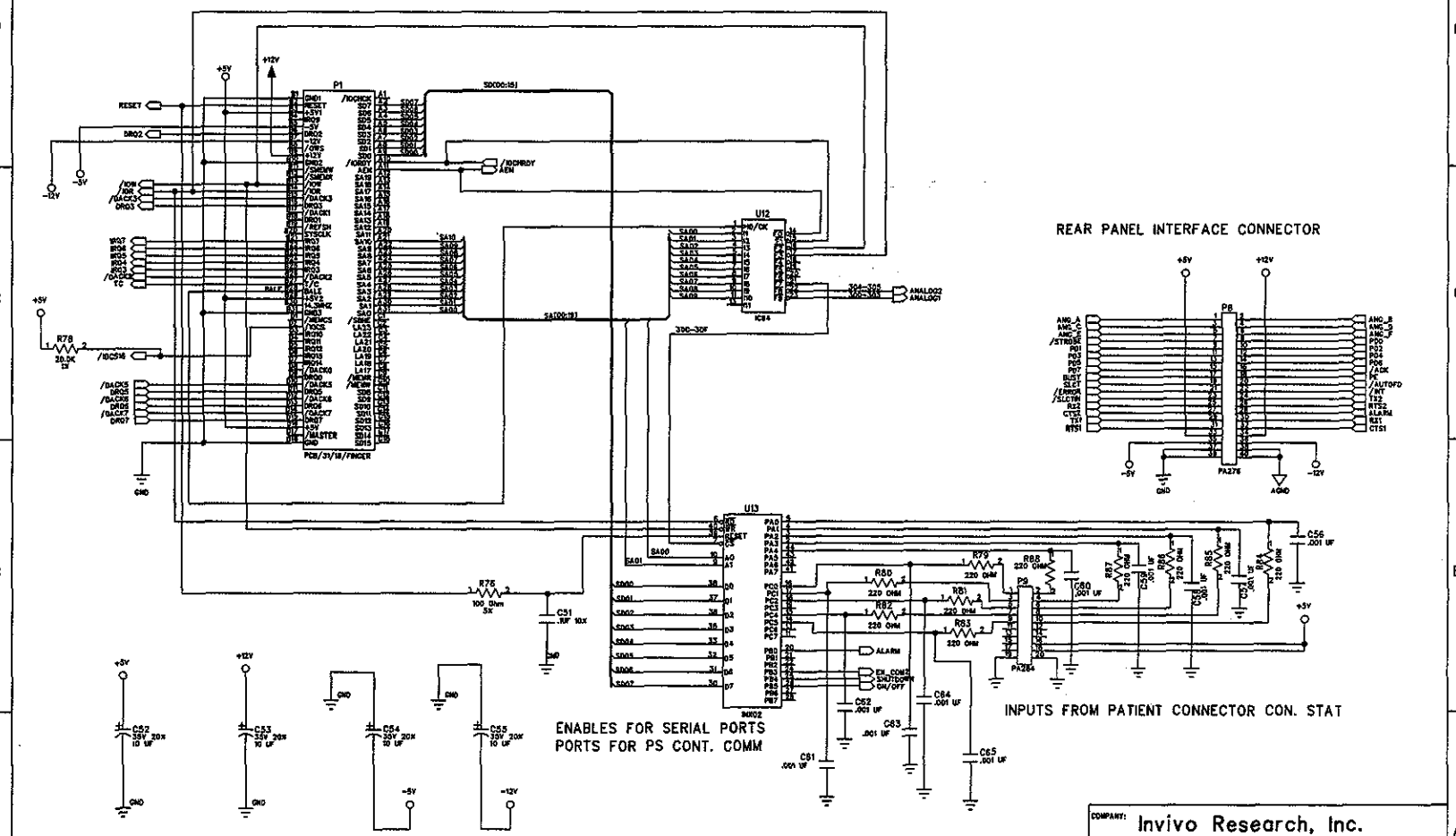
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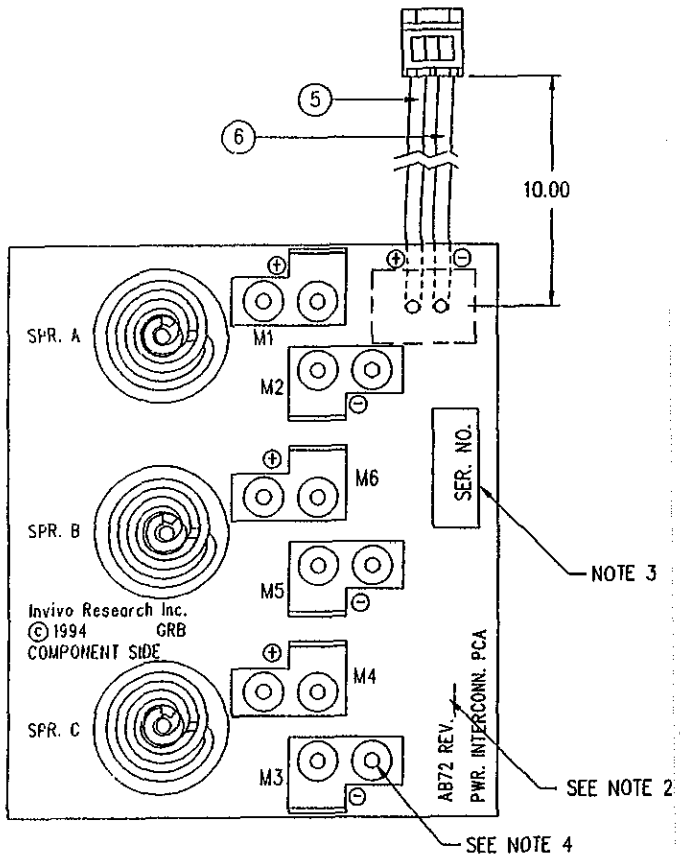
COMPANY:	Invivo Research, Inc.		
TITLE:	SCHEMATIC: AB70 PCA, MULTI-FUNCTION I/O, 3500		
CODE:	SIZE: C	DRAWING NO: 185C188	REV: D
SCALE: NONE		SHEET: 2 OF 4	

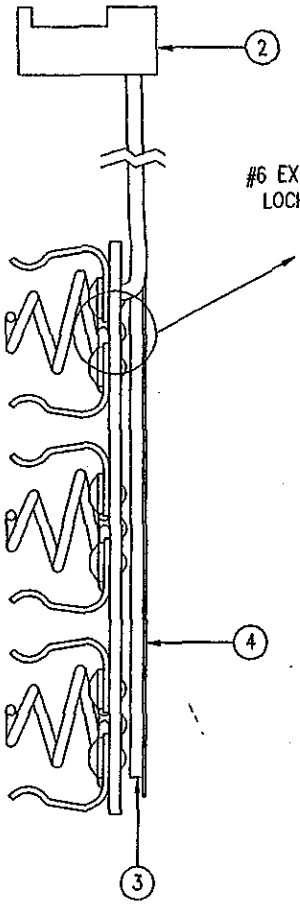

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SET TO 5.12V
COMPANY: Invivo Research, Inc.
TITLE: SCHEMATIC: AB70
PCA, MULTI-FUNCTION I/O, 3500
CODE:
SIZE: C
DRAWING NO: 185C188
REV: D
SCALE: NONE
SHEET: 3 OF 4

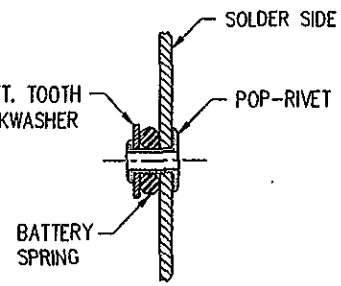
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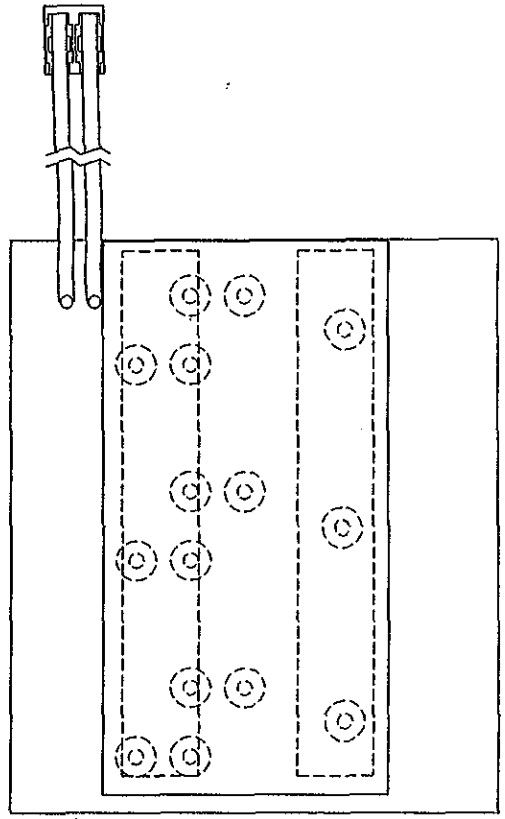
COMPANY: Invivo Research, Inc.			
TITLE: SCHEMATIC: AB70 PCA, MULTI-FUNCTION I/O, 3500			
CODE:	SIZE: C	DRAWING NO: 185C188	REV: D
SCALE: NONE		SHEET: 4 OF 4	







DETAIL A
CAD SCALE: 4 : 1



NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. INSTALL BATTERY CONTACTS USING 1/8" DIA X 3/16" LG. BRASS EYELETS.
   EYELETS TO BE FIRMLY SWAGED OVER ON COMPONENT SIDE.
   SOLDER EYELETS TO SOLDER SIDE OF BOARD AFTER SWAGING.
5. INSTALL BATTERY SPRINGS USING 1/8" DIA. ALUMINUM POP-RIVETS AS SHOWN IN DETAIL "A".
6. CUT M000 TAPE INTO TWO EQUAL LENGTHS TO ATTACH HM50AU AS SHOWN.

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
6	W017	1 FT.	WIRE, 18 GA 19X30 BLACK, UL-1430
5	W022	1 FT.	WIRE, 18 GA 19X30 RED, UL-1430
4	HM50AW	1	INSULATOR, PWR. INTCN.
3	M000	6"	TAPE, OPN.CL.FM, DS, .06THK.X.38W
2	PA253A	1	CONN, 2P, SR, RECPT, MTA.156, IDC
SPR A,B,C	HM50M	3	SPRING, BATTERY EJECTOR, 3500
M1-M6	HM50AB	6	BATTERY CONTACT, OMNI-TRACK 3500
1	B151	1	PCB, POWER INTERCONNECT REV.B

REV.	DESCRIPTION	BY	DATE
C	PER ECN #5048	SLC	02JUL96
B	PER ECN #4998	JRB	4/22/96
A	RELEASED, ECN #4793	JRB	2/7/96

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.XX = ± ——
.XXX = ± ——
ANGLES = ± ——

DRAWN	JRB	2/7/96
DESIGNED	SLN	6/16/94
CHECKED	[illegible]	7/9/96
APPROVED	[illegible]	7/9/96

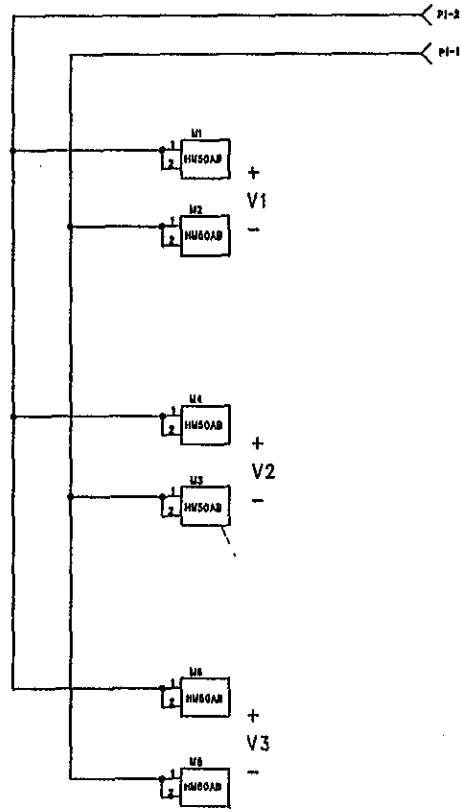
INCHES — THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE ASSEMBLY: AB72
PCA, POWER INTERCONNECT 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	C94C706	C



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REV.	DESCRIPTION	BY	DATE
A	RELEASED, ECN#4793	JRB	2/7/98

DRAWN: R. BAKER DATED: 2/6/98
CHECKED: DATED: 2/22/96
QUALITY CONTROL: DATED: 2/22/96
RELEASED: DATED: 2/27/96

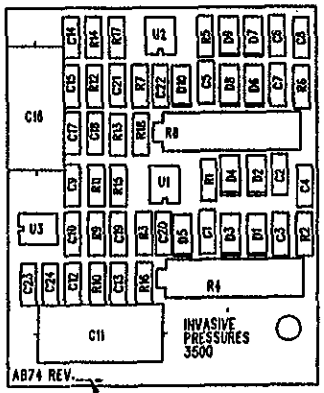
COMPANY: INVIVO RESEARCH, INC.
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

TITLE: SCHEMATIC: AB72
PCA, POWER INTERCONNECT 3500

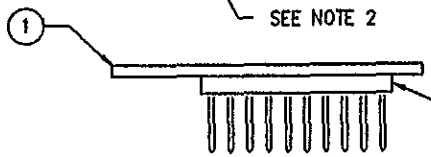
CODE:	SIZE:	DRAWING NO:	REV:
	C	C85C206	A

SCALE: NONE SHEET: 1 OF 1

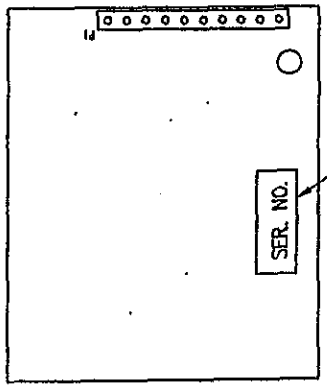
A-50



SEE NOTE 2



SEE NOTE 4



SEE NOTE 3

NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. COMPONENT AT LOCATION P1 IS TO BE INSTALLED ON THE SOLDER SIDE OF THE BOARD, FLUSH TO THE SURFACE.

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
U3	ILX10	1	OP AMP, LW DRFT/OFF, JFET, LF412D
U1,2	ILX16	2	I.C., INSTR. AMPLIFIER, SO8 PKG.
R15-18	RX70	4	RES, 10 OHM, 5%, 1/8W, 200PPM, 1206
R9-14	RX135	6	RES, 45.3K, 1%, .125W, 100PPM, 1206
R4,8	RP82	2	RES., 50 OHM POT, 20% .75W, 20 TURN
R3,7	RX163	2	RES., 100 OHM, 1%, .125W, 100 PPM, 1206
R1,2,5,6	RX64	4	RES., 22 MEG, 5%, .125W, 200 PPM, 1206
P1	PA257	1	CONN, 10P, SR, HDR, ST, .100 CTR,GD
D5,10	DZX01	2	DIODE, ZENER, 6.2V, SOD-80C, SMD
D1-4,6-9	DDX01	8	DIODE, SIGNAL, 1N4148
C13,18	CX08	2	CAP, .0068uF, 5%, 50V, X7R, CHIP, CER.
C11,16	CP28	2	CAP, 1uF, 2%, 100V, POLYESTER
C10,15	CX30	2	CAP, .001uF, 5%, 50V, COG, 1206 CER.
C9,12,14,17	CX29	4	CAP, .1uF, 5%, 50V, X7R, 1206 CER.
C1-8,19-24	CX22	14	CAP, .1uF, 10%, 50V, X7R, 1206, CER
1	B153	1	PCB, INVASIVE PRESSURES, 3500 REV. B

REV.	DESCRIPTION	BY	DATE
D	PER ECN #5279	SLC	26SEP96
C	PER ECN #5278	SLC	26SEP96
B	PER ECN #5036	JRB	5/16/96
A	RELEASED, ECN #4824	JRB	2/14/95

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.XX = ± ——
.XXX = ± ——
ANGLES = ± ——

DRAWN	SR	11/20/96
DESIGNED	SLN	6/16/94
CHECKED		
APPROVED		

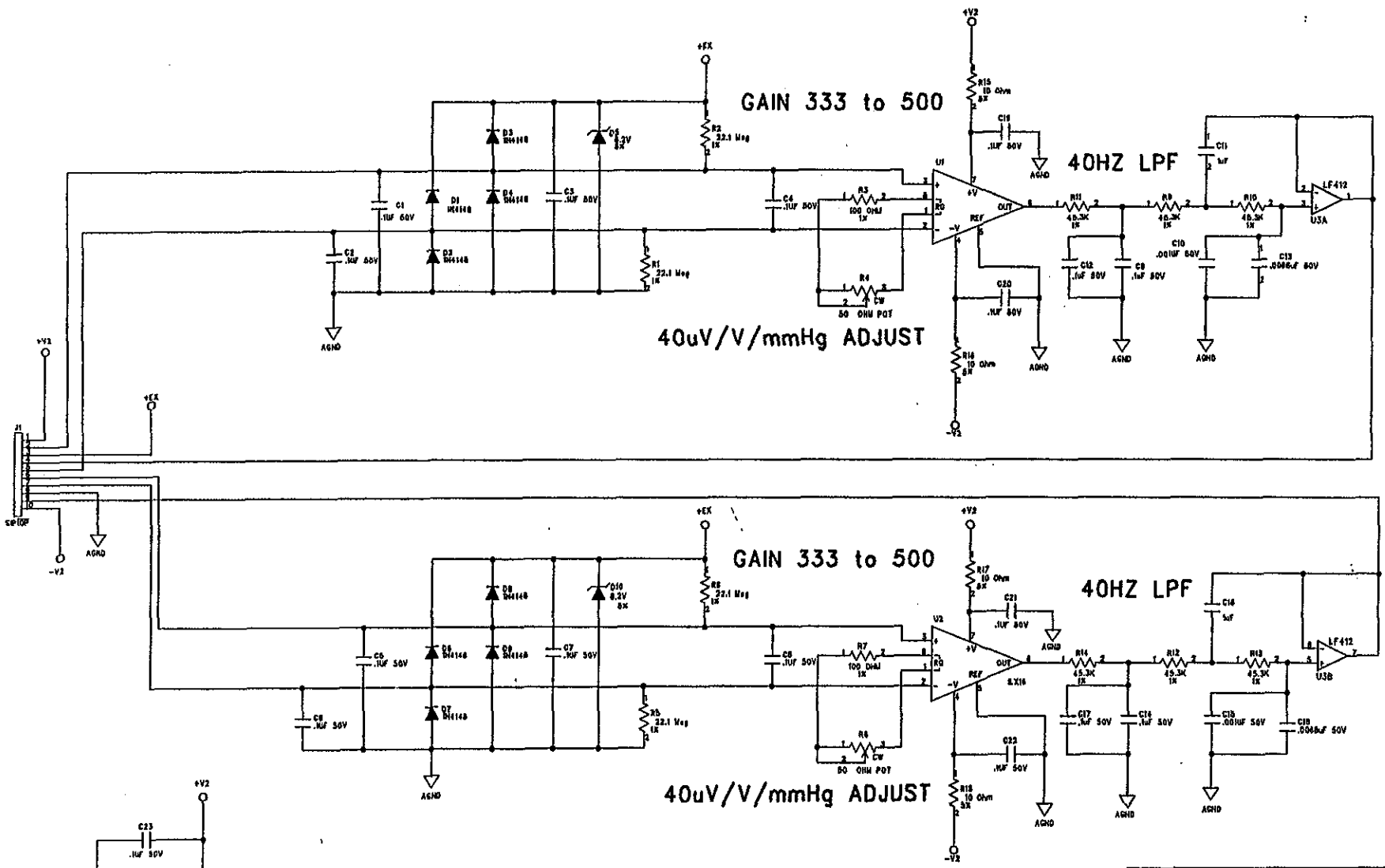
INCHES — THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

Invivo Research Inc.
PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE
ASSEMBLY: AB74
PCA, INVASIVE PRESSURES, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	C94C657	D



REV.	DESCRIPTION	BY	DATE
A	RELEASED, PER ECN#4B24	JRB	2/21/96
01	PROTOTYPE	SLC	11NOV95

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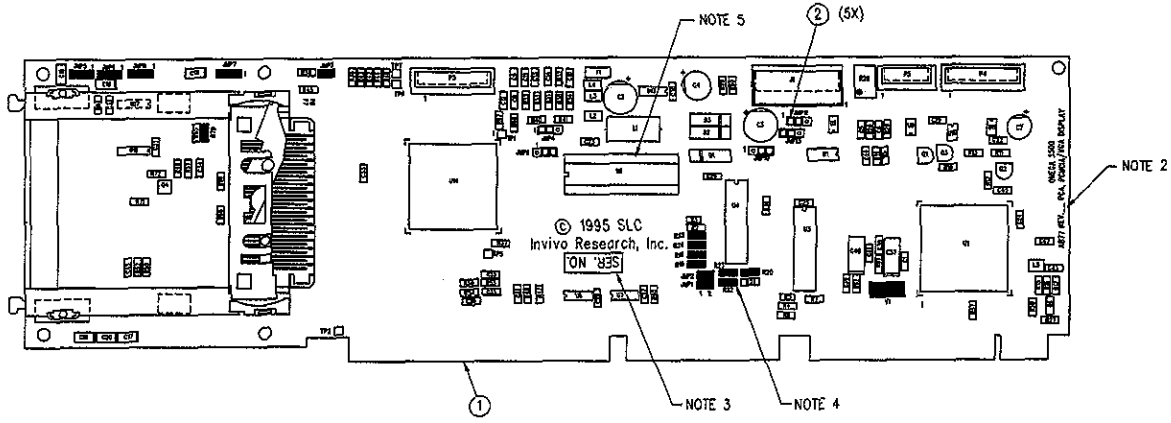
DRAWN: SHELLY L. NEW — DATED: 01JUN94
CHECKED: — DATED: 2/26/96
QUALITY CONTROL: — DATED: 3/13/96
RELEASED: — DATED: 2/20/96

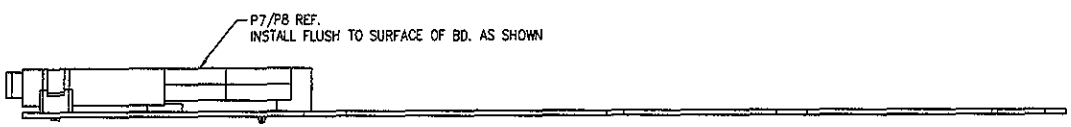
COMPANY: INVIVO RESEARCH INC.

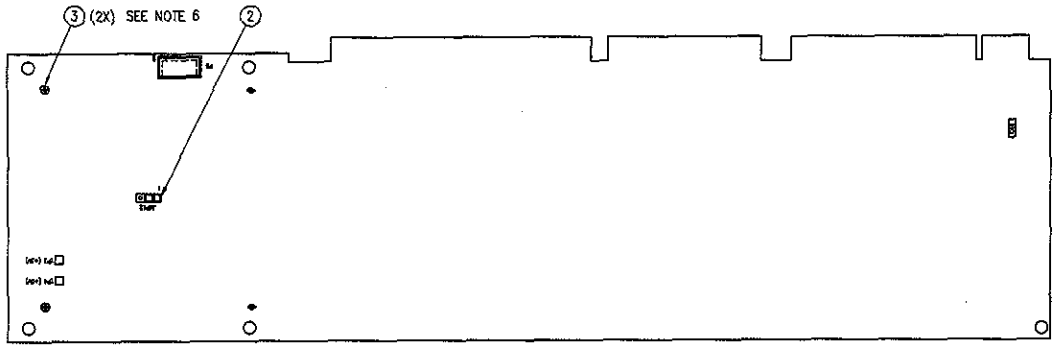
TITLE: SCHEMATIC: AB74/B153
PCA, INVASIVE PRESSURES, 3500

CODE:	SIZE:	DRAWING NO:	REV:
	C	C85B190	A

SCALE: — SHEET: OF







NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-- ORIENT AS SHOWN
4. COMPONENTS SHOWN AS SOLID ARE TO BE OMITTED
5. U6 TO BE INSTALLED AT FINAL ASSEMBLY
6. ADD ONE DROP OF LOCTITE 425 (M050) TO SCREW THREADS BEFORE INSTALLING SCREW.

JUMPER SETTINGS

DISPLAY	3500 OPTION	JMP10*	JMP13
1. ACTIVE	3503-1	NOT USED	NOT USED
2. EL	3503-2	NOT USED	2-3 (+12SAFE)
3. PASSIVE	3503-3	NOT USED	1-2 (VCON)

* ENGINEERING NOTES FOR OLDER PASSIVE PANELS THAT USE VEE:

1. JMP10 POSITION 2-3 IS +27V (+VEE)
2. JMP10 POSITION 1-2 IS -27V (-VEE)
3. IF JMP10 IS USED, JMP13 IS NOT USED.

REF. DES.	PART NO.	QTY.	DESCRIPTION
F1	FU17	1	FUSE, 500mA, .125W
C43,44	CX06	2	CAP, 10PF, 20%, 50V, COG, 1206, CER.
L5	TX08	1	INDUCTOR, 0.47uH, 20%, 1210
Q4	QX00	1	TRANS, NPN, SIL, SOT23, TYPE 2222
R72	RX19	1	RES, 2K, 5%, .125W, 200PPM, CHIP
3	NS94	2	SCREW, M2 X 12 PHMS-XR
C15-20	CXT04	6	CAP, 1UF,20%, 35V, TANTALUM, CHIP
U14	ICX45	1	CONTROLLER PC SOCK, VGA-469
L2,3,4	TX05	3	INDUCTOR, 5.6uH, 10%, 100mA, SMT
U3,4	IMX04	2	IC, DRAM, 256K x 16 BIT, SOJ-40
L1	TQ27	1	COIL, 220uH
U17,18	ICX48	2	IC, INTRFC.SW, PCMCIA, SO-16
R42-46,63, R64	RX17	7	RES, 100K, 1%, .125W, 200 PPM, CHIP
R29	RX189	1	RES, 301K, 1%, .125W, 100 PPM, 1206
R15-17	RX170	3	RES, 150 OHM, 5%, .25W, 200 PPM, 1206
R3,5	RX165	2	RES, 1 OHM, 5%, .1W, 200 PPM, 0805
R8,51-54	RX163	5	RES, 100 OHM, 1%, .125W, 100 PPM CHP
R7,27,30-33 36,48, 59-60	RX141	10	RES, 33 OHM, 5%, .125W, 200 PPM, 1206
R47,61,62	RX70	3	RES, 10 OHM, 5%, .125W, 200 PPM, 1206
R6	RX58	1	RES, 20K, 1%, .125W, SMD 1206
R10,12,13,49 50,55-57, 65-69	RX57	13	RES, 10K, ±1%, .125W, SMD 1206
R26	RX52	1	RES, 8.2K, 5%, .125W, 200 PPM
R58	RX47	1	RES, 270 OHM, 5%, .125W, 200 PPM CP
R9,11,14	RX18	3	RES, 49.9K, 1%, .125W, 200 PPM CHIP
R21,37-41,71	RX08	7	RES, 4.7K, ±5%, .125W
R2,4,34,35	RX01	4	RES, 1 MEG., ±5%, .125W
R1	RNX01	1	RES, NTWK, 33 OHM X 8,2%,100PPM
R28	RP63	1	RES, POT, 50K, ±10%, .5W, 20T, TRIM
U10,11	QX12	2	IC, TRANS, DUAL P-CH, MOSFET, SO-8
U2	QX11	1	IC, TRANS, DUAL N-CH, MOSFET, SO-8
Q1-3	QQ20	3	XSTR., TO-92, 2N3904 NPN
J1	PA290	1	CONN, 26P, DR.HDR, RA, SHRD, .079
P7/P8	PA260	1	RCPT., PCMCIA MEM. CARD., 2 SLOT
P6	PA287	1	CONN, 5P, SR.HDR, RA, .049 CTRS.
P5	PA263	1	CONN, 10P, SR.HDR, RA, SHRD, .049
P3,4	PA261	2	CONN, 15P, SR.HDR, RA, SHRD, .049
U9	IRX05	1	IC, REGULATOR, 10W, CMOS, SO-8
JMP4, 9-13	PA08	6	HEADER, UNSH, SR.3P, (.10)
2	PA66	5	SHUNT, 2 POSITION, .10 CTRS.
TP1-7	PA00	7	CONN, 1P, SR. HDR, ST, UNSHRD, (.10)
NOTE 5 XU6	PO26	1	SCKT, 28P DIP, LO-PRO, .10 CTRS.
U13	ICX47	1	IC, QUAD BUFFER, 14P, SOIC, 74ACT
U1	ICX46	1	IC, VGA CNTRLR, SQFP, 65545, 208P
U8	ICX33	1	NAND GATE, QUA, 74ACT00, 14P, SOIC
U7	ICX32	1	OR GATE, QUADZ, 74ACT32, 14P, SOIC
D1-3	DD15	3	RECTIFIER, 1N4935, 200V
C37,40	CXT01	2	CAP, 47uF, 20%, 10VDC, CHIP, TANT
C8-10	CX34	3	CAP, 220pF, 5%, 50V, NPO, 1206, SMD
C11,14	CX30	2	CAP, .001uF, 5%, 50V, COG, 1206, CHP.
C12,13	CX25	2	CAP, 22pF, 5%, 50V, X7R, 1206, SMD
C1,5,22-33,38 39,41,45-47	CX22	20	CAP, .1uF, 10%, 50V, X7R, 1206, CHP.
C6,21	CX11	2	CAP, .01uF, 10%, 50V, X7R, CHP, CER.
C34-36,42	CX09	4	CAP, 100pF, 10%, 50V, COG, CHP, CER.
C4	CT24	1	CAP, 10uF, 10%, 50V, RAD, TANT.
C2,3	CA39	2	CAP, 100uF, 20%, 63V, AL, RAD, 10x12
C7	CA06	1	CAP, 100uF, 20%, 16V, AL, RAD.
1	BI56	1	PCB, PCMCIA/VGA DISPLAY, REV. C

REV.	DESCRIPTION	BY	DATE
F	PER ECN #5302	KCO	1/29/96
E	PER ECN #5277	SLC	1/29/96
D	PER ECN #5201	RHK	12/4/95
C	PER ECN #5128M	SLC	8/4/95
B	RELEASED, ECN #4743	SLC	1/12/95
A	RELEASED, ECN #4670	GB	10/17/95

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	DRAWN	CHK	8/1/95
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.XX = ± ———	CHECKED		
.XXX = ± ———	APPROVED		
ANGLES = ± —			

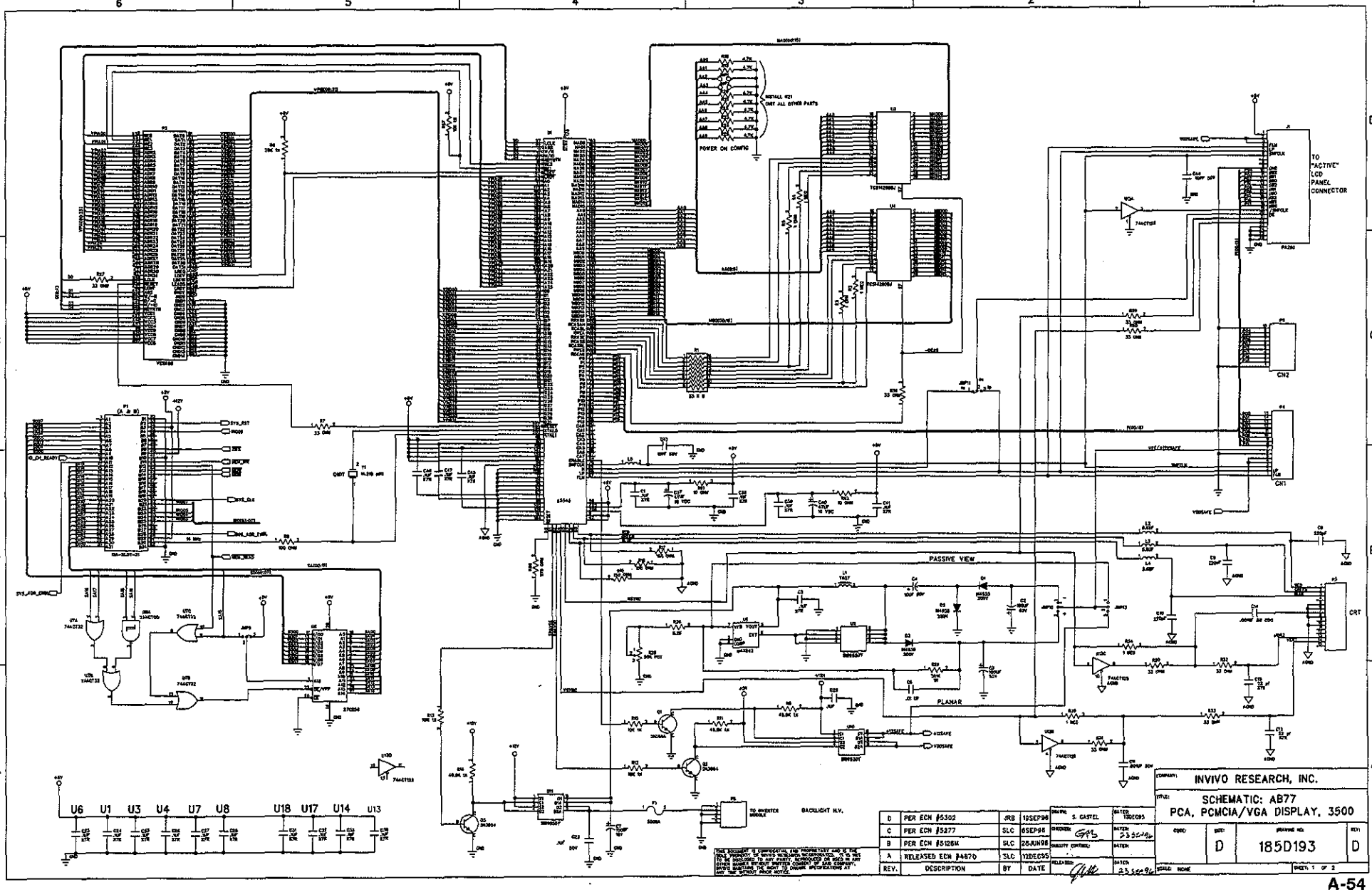
THIRD ANGLE PROJECTION

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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

TITLE: ASSEMBLY: AB77
PCA, PCMCIA/VGA DSPLY, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
1.5 : 1	1 of 1	194D669	F



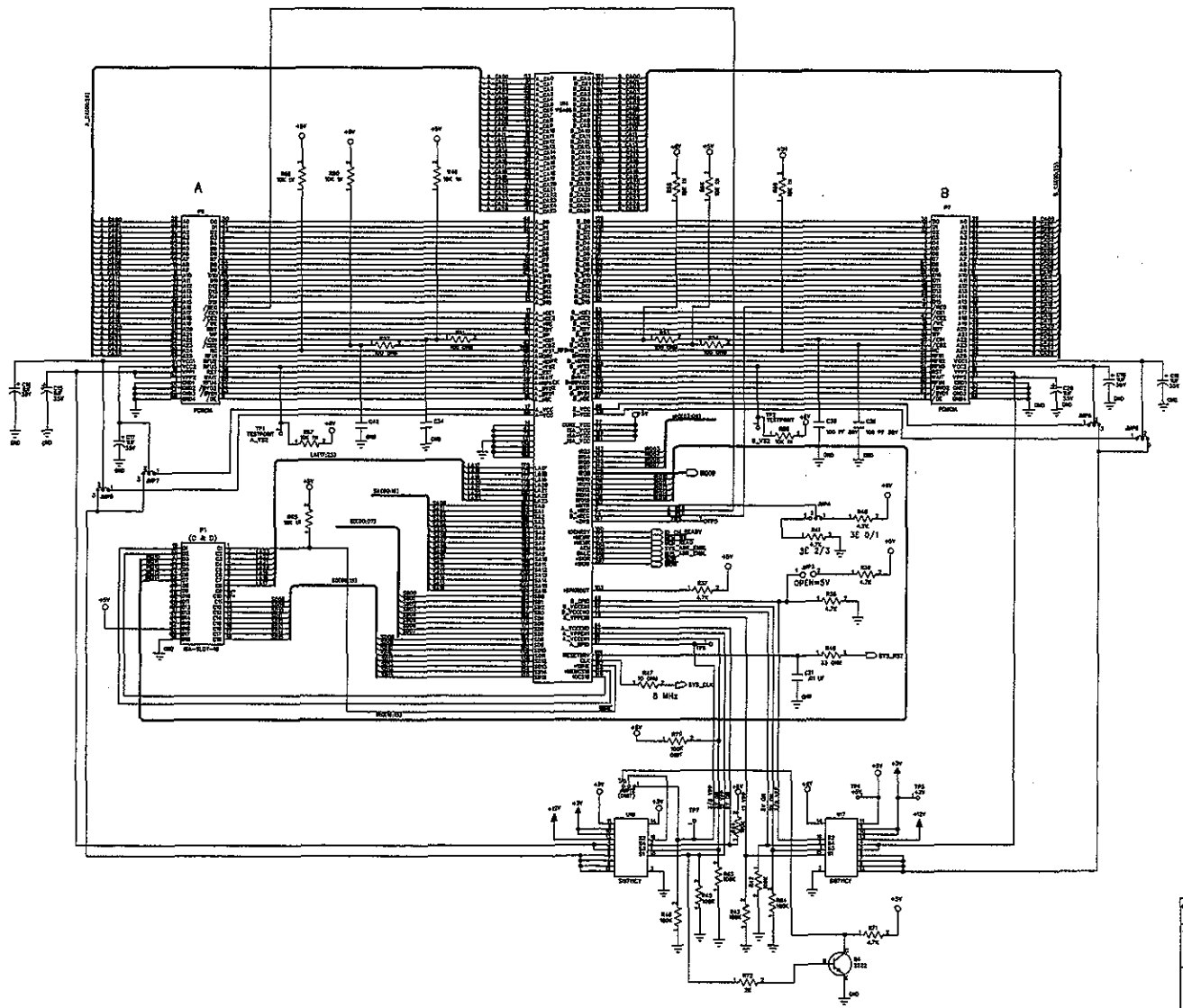
REV.	DESCRIPTION	BY	DATE
D	PER ECN #5302	JRB	19SEP96
C	PER ECN #5277	SLC	6SEP96
B	PER ECN #5128M	SLC	26JUN96
A	RELEASED ECN #4870	SLC	12DEC95

DRAWN: S. CASTEL DATE: 12DEC95
CHECKED: DATE:
QUALITY CONTROL: DATE:
RELEASED: DATE:

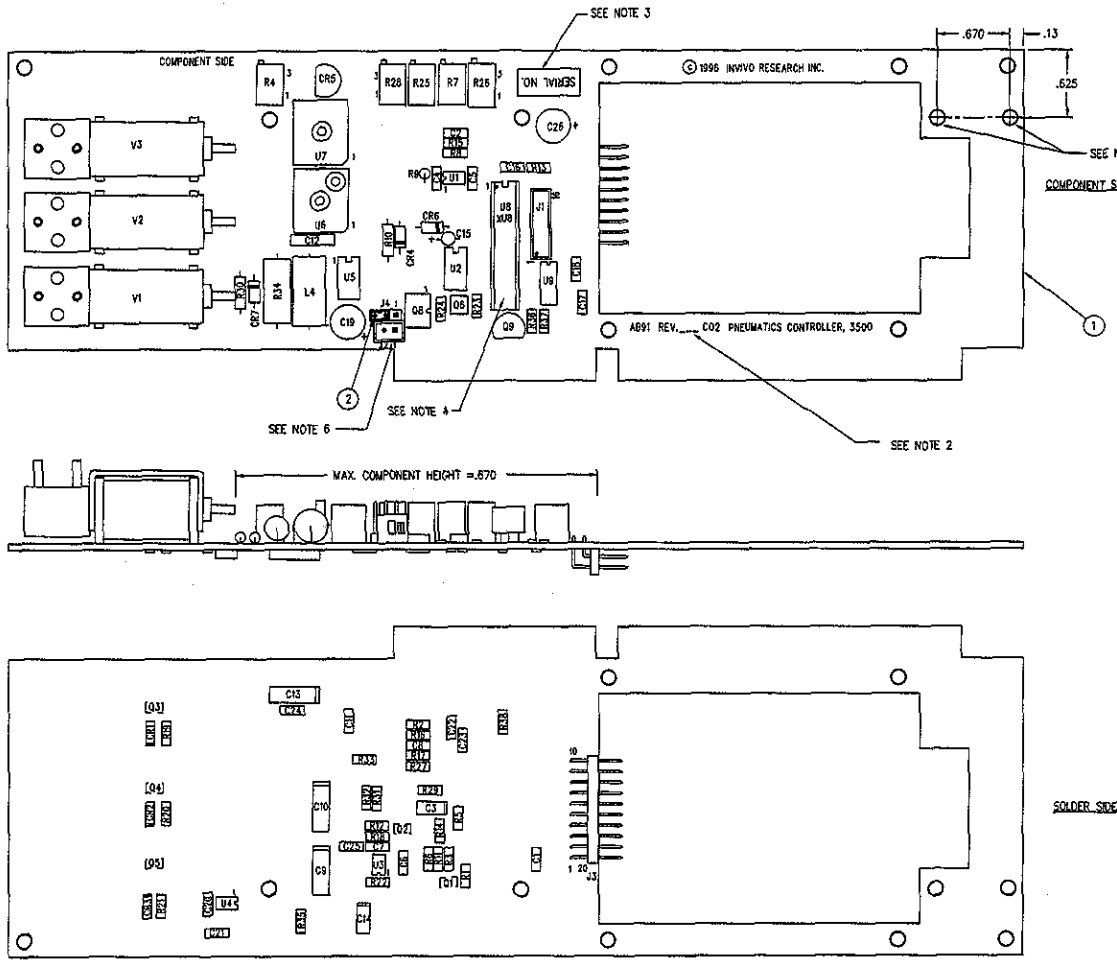
COMPANY: INVIVO RESEARCH, INC.
TITLE: SCHEMATIC: AB77
PCA, PCMCIA/VGA DISPLAY, 3500
CODE: D SIZE: D DRAWING NO: 185D193 REV: D
SCALE: NONE SHEET 1 OF 2

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COMPANY:	Invivo Research, Inc.
TITLE:	SCHEMATIC: AB77 PCA, PCMCIA/VGA DISPLAY, 3500
CODE:	
SIZE:	D
DRAWING NO:	185D193
REV:	D
SCALE: NONE	SHEET: 2 OF 2



V1,V2,V3	HP88A	3	M.V. PNEU, 12VDC, 10 PSI, PCB MT.
U9	ICX50	1	IC, 16P MPX, MONO. CMOS, NRW. PKG.
U8	AM50	1	PROM SET, CO2 PNEUMATICS, 3500
XU8	PO30	1	SOCKET, 24 PIN DIP, .300 CTR.
U7	HP53	1	SENSOR, ABS-PRESSURE, 0-15 PSI.
U6	HP52	1	SENSOR, DIF-PRESSURE, 0-5 PSI.
U5	IR04	1	CONVERTER DC TO DC MC34063AP1
U3	ILX16	1	IC, INSTR. AMPLIFIER, SO8 PKG.
U2	IL25	1	OPA27GP OP AMP
U1,U4	ILX1D	2	OP AMP, LW DRFT/OFF, JFET, LF412D
R35	RX205	1	RES, 619 OHM, .25W, 1%, 100PPM, 1206
R34	R076	1	RES, 1.2 OHM, 1W, 5%, MO
R30	RF169	1	RES, .27 OHM, 1W, 1%, WW
R32	RX91	1	RES, 220 OHM, 5%, 200PPM, .125W, 1206
L4	T027	1	COIL, 220uH
R33	RX133	1	RES, 5.62K, .125W, 1%, 100PPM, 1206
R26	RP26	1	RES, 2K POT, 10%, .5W, CER 20T
R24,36	RX75	2	RES, 51.1K, .125W, 1%, 100PPM, 1206
R22	RX83	1	RES, 1K, .125W, 1%, 1206
R16,27	RX07	2	RES, 15K, .125W, 5%, 1206
R17	RX04	1	RES, 47K, .125W, 5%, 1206
R15	RX57	1	RES, 10K, 1%, .125W, SMD, 1206
R12,16	RX168	2	RES, 499K, .125W, 1%, 100PPM, 1206
R11	RX111	1	RES, 47.5K, .125W, 1%, 100PPM, 1206
R10	RF54	1	RES, 3.32K OHM, .125W, 1%, MF
R9	RF30	1	RES, 42.2K, .125W, 1%, MF
R7,25,28	RP15	3	RES, 10K, POT, .5W, 10%, 20T
R6	RX50	1	RES, 22K, 5%, .125W 200PPM CHIP
R5,13,23,31 R37,38	RX105	6	RES, 10.0K, .125W, .1%, 50PPM, 1206
R4	RP28	1	RES, 100K POT 68JR100K
R3,8,14	RX02	3	RES, 1K, .125W, 5%, 1206
R1,2,19,20 R21,29	RX19	6	RES, 2K, .25W, 5%, 200PPM, 1206
Q9	QC03	1	TRANS, FET, N-CHNL, TO-92, VN10KM
Q8	QX12	1	IC, TRANS, DUAL P-CH, MOSFET, SO-8
Q1,2	QX01	2	TRANS, PNP, SIL, SO23, TYPE 2907A
Q3,4,5,6	QX00	4	TRANS, NPN, SIL, SO23, TYPE 2222
J4	PA08	1	CONN, 3P, SR, HDR, ST, UNSHRD (.100)
J3	PA315	1	HEADR, 20P, DBL, ROW, RA, UNSHR
J2	PA194	1	CONN, 2P, SR. HDR, ST, .098 CTRS.
2	PA66	1	SHUNT, 2 POSITION, .100 CTRS.
J1	PA271	1	CONN, 16P, DR. HDR, ST., .079 CTRS
CR6,CR7	D008	2	DIODE, SCHOTTKY, 1A, 40V
CR5	IR50	1	TL431CP, PROG- PRECISION REF.
CR4	DZ03	1	ZENER, 1N758A, 10V, 500mW
CR1,2,3	DDX01	3	DIODE, SIGNAL, LEADLESS, 500mW
C15	CT12	1	CAP, .47uF, 10%, 35V, TANT.
C2	CX11	1	CAP, .01uF, 10%, 50V, X7R, CHIP, CER.
C12	CC17	1	CAP, 470PF, 10%, 100V, XR7, CER.
C19,26	CA30	2	CAP, 100uF, 20%, 25V, AL, RAD.
C3,C14	CXT04	2	CAP, 1uF, 20%, 35V, 6032, TANT.
C9,10,13	CXT02	3	CAP, 6.8uF, 20%, 35V, 7343, TANT.
C1,4,5,6,7,8 C11,16,17,18 C20,21,22 C23,24,25	CX22	16	CAP, .1uF, 10%50V, X7R, 1206 CHIP
1	B163	1	PCB, ETCO2 PNEUMATICS CNTRLR, 3500, REV. A
ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION

NOTES
1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION: UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL. PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. U8 (AM50) TO BE INSTALLED AT FINAL STAGE OF ASSEMBLY.
5. V1-3, VALVES, ARE TO BE INSTALLED AFTER WAVE SOLDERING AND CLEANING
6. INSTALL PA194 AT J2 PINS 1 AND 2. ORIENT CORRECTLY BY ALIGNING PIN 1 INDICATOR ON PA194 WITH SILKSCREENED PIN 1 INDICATOR ON BOARD.
7. DRILL TWO .136 HOLES IN THE LOCATIONS SHOWN.

REV.	DESCRIPTION	BY	DATE
D	PER ECN #5230	JRB	8/14/96
C	PER ECN #5164	CHY	7/15/96
B	PER ECN #5158	JRB	7/30/96
A	RELEASED, ECN #5013	JRB	4/29/96

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE: .XX = ± ___ .XXX = ± ___ ANGLES = ±

DRAWN	JRB	4/29/96
DESIGNED	JC	8/15/95
CHECKED		
APPROVED		

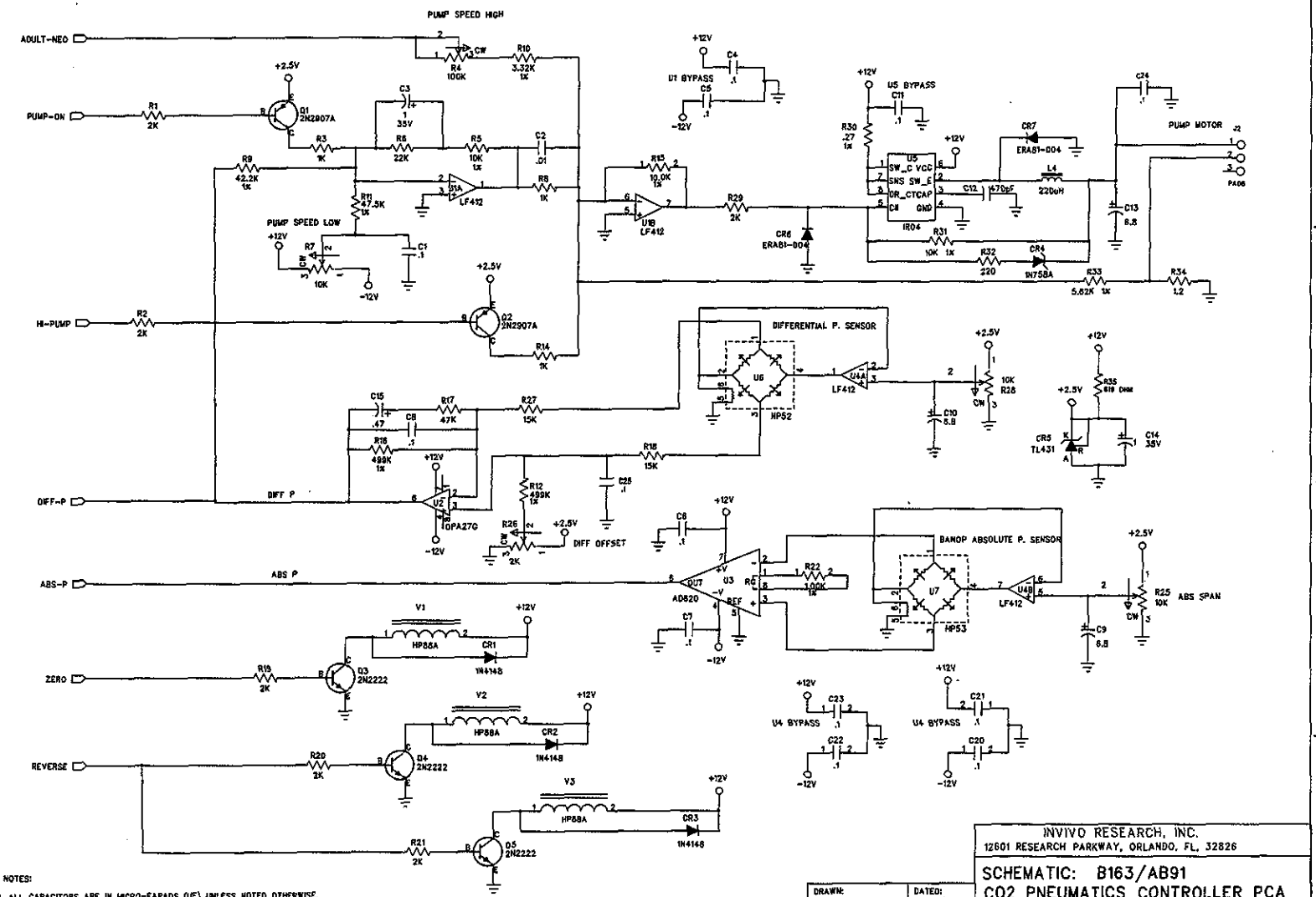
THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

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PROFESSIONAL BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

ASSEMBLY: AB91
PCA, ETCO2 PNEUMATICS CNTRLR, 3500

SIZE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	194D687	D



NOTES:

1. ALL CAPACITORS ARE IN MICRO-FARADS (UF) UNLESS NOTED OTHERWISE.
2. ALL RESISTORS ARE IN OHMS, 1/8W, 5% UNLESS NOTED OTHERWISE.

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REV.	DESCRIPTION	BY	DATE
A	RELEASED, ECN #5013	JRB	4/25/96
01	PROTOTYPE REVISION	JRB	3/27/96
0	PROTOTYPE RELEASE	RK	9/28/95

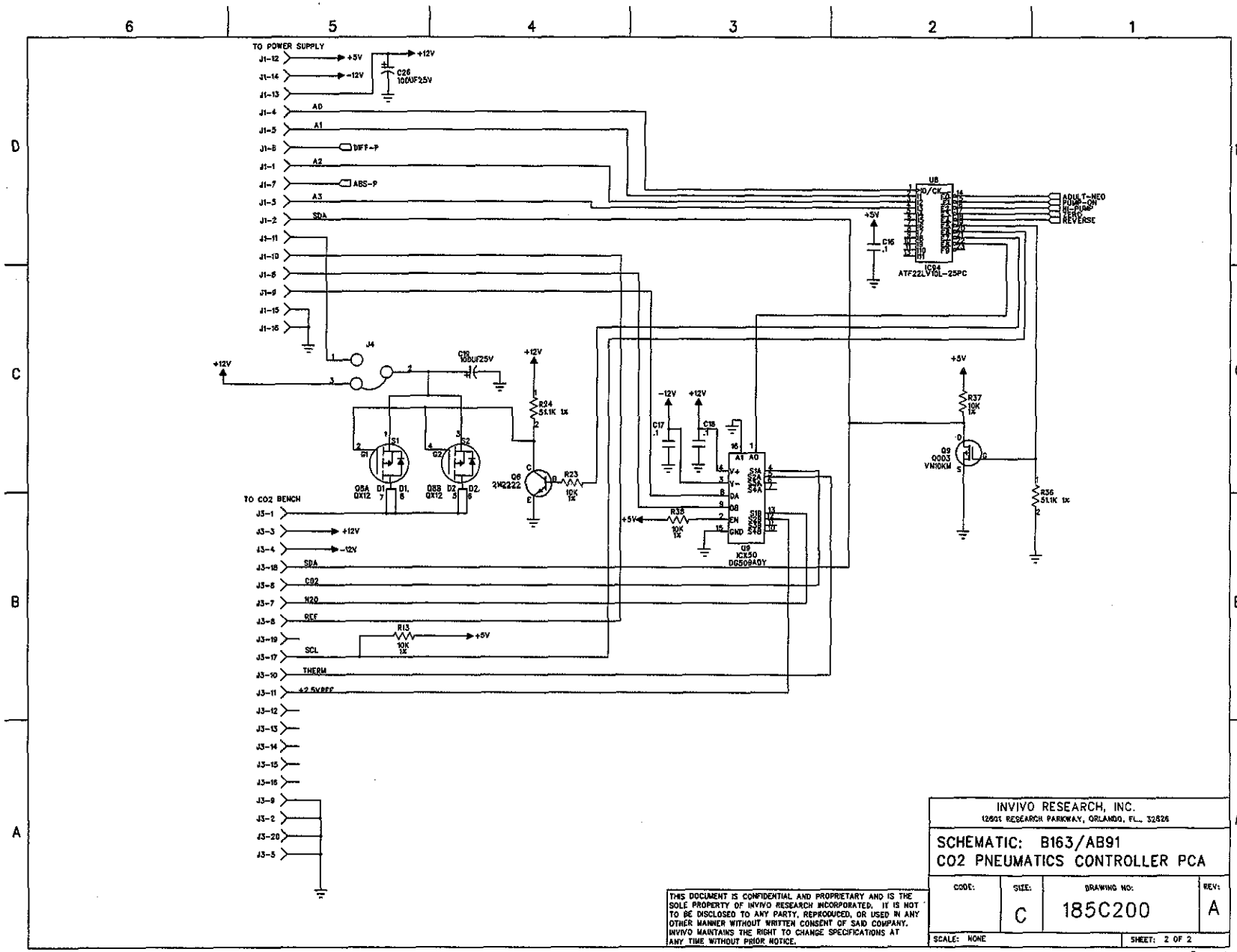
DRAWN: RAY KEMP	DATED: 9/28/95	
CHECKED:	DATED: 5/1/96	
QUALITY CONTROL:	DATED: 5/7/96	
RELEASED:	DATED: 5/7/96	

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SCHEMATIC: B163/AB91
CO2 PNEUMATICS CONTROLLER PCA

CODE:	SIZE:	DRAWING NO:	REV:
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SCALE: NONE | SHEET: 1 OF 2



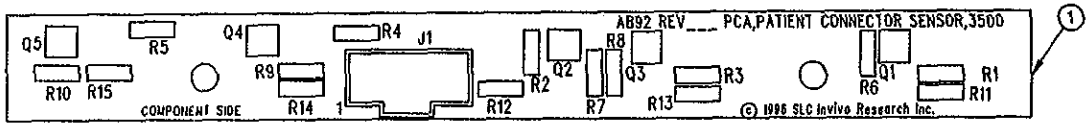
INVIVO RESEARCH, INC.
12601 RESEARCH PARKWAY, ORLANDO, FL., 32826

SCHEMATIC: B163/AB91
CO2 PNEUMATICS CONTROLLER PCA

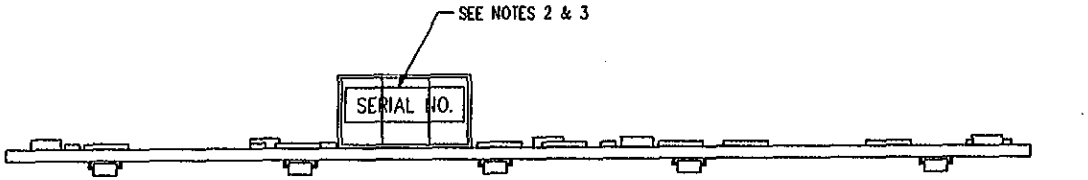
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	C	185C200	A

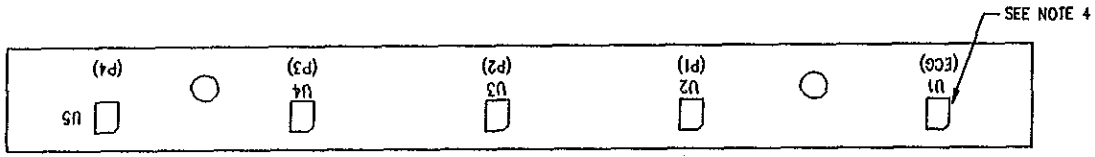
SCALE: NONE | SHEET: 2 OF 2

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COMPONENT SIDE





SOLDER SIDE

NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA--ORIENT AS SHOWN.
4. COMPONENTS AT LOCATIONS U1-U5 ARE TO BE INSTALLED
   ON THE SOLDER SIDE OF THE BOARD, FLUSH TO THE SURFACE.

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
U1-U5	IL61	5	IC,SENSOR,REFLECTIVE,EE-SY124
R6-R10	RX08	5	RES, 4.7K .125W, +/-5%
R1-R5	RX155	5	RES, 430 OHM, 5%, .125W, 200PPM
R11-R15	RX159	5	RES, 39K, 5%, .125W, 200PPM, 1206
Q1-Q5	QX00	5	TRANS,NPN,SILI,SO23,TYPE 2222
J1	PA284	1	CONN,20P,DR.HDR,SHRD,.050 CTRS
1	B164	.1	PCB, CONNECTOR SENSOR 3500, REV. B

REV.	DESCRIPTION	BY	DATE
C	PER ECN #5226	CHY	14AUG96
B	PER ECN# 5020M	JRB	5/7/96
A	RELEASED, ECN #4772	JRB	1/30/96

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.XX = ±
.XXX = ±
ANGLES = ±

DRAWN	JRB	1/30/96
DESIGNED	JN	9/5/95
CHECKED	[illegible]	[illegible]
APPROVED	RVC	8/96

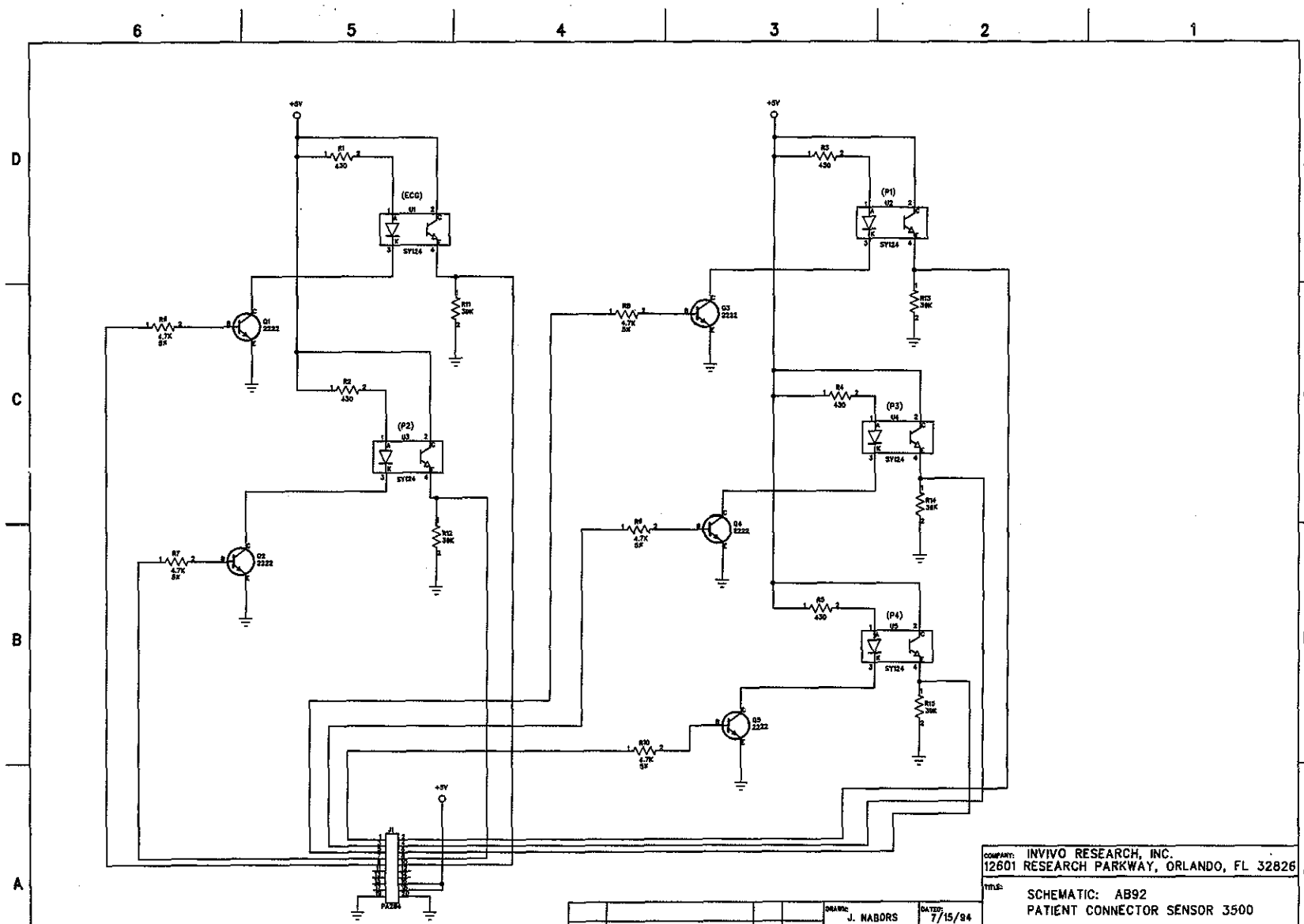
INCHES — THIRD ANGLE PROJECTION

DO NOT SCALE THIS DRAWING !!!

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PRECISION BIOMEDICAL INSTRUMENTS
12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE
ASSEMBLY: AB92
PCA, CONNECTOR SENSOR 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2:1	1 OF 1	C94C691	C



REV.	DESCRIPTION	BY	DATE
B	PER ECN #50206	JRB	5/7/98
A	RELEASED, ECN#4772	JRB	1/31/98

DRAWN: J. NABORS — DATED: 7/15/94
CHECKED: D.E. Hall — DATED: 5/29/96
QUALITY CONTROL: BV — DATED: 5/1/96
RELEASED: — DATED: 5/8/96

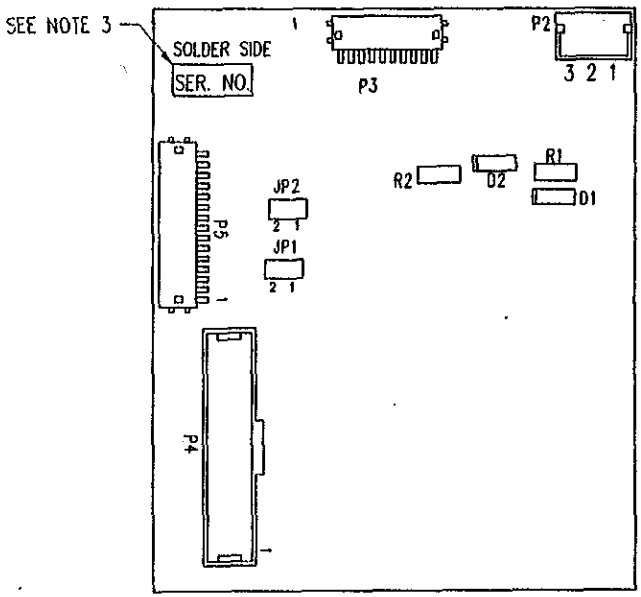
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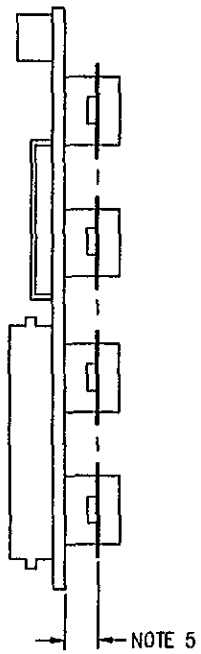
COMPANY: INVIVO RESEARCH, INC.
12601 RESEARCH PARKWAY, ORLANDO, FL 32826

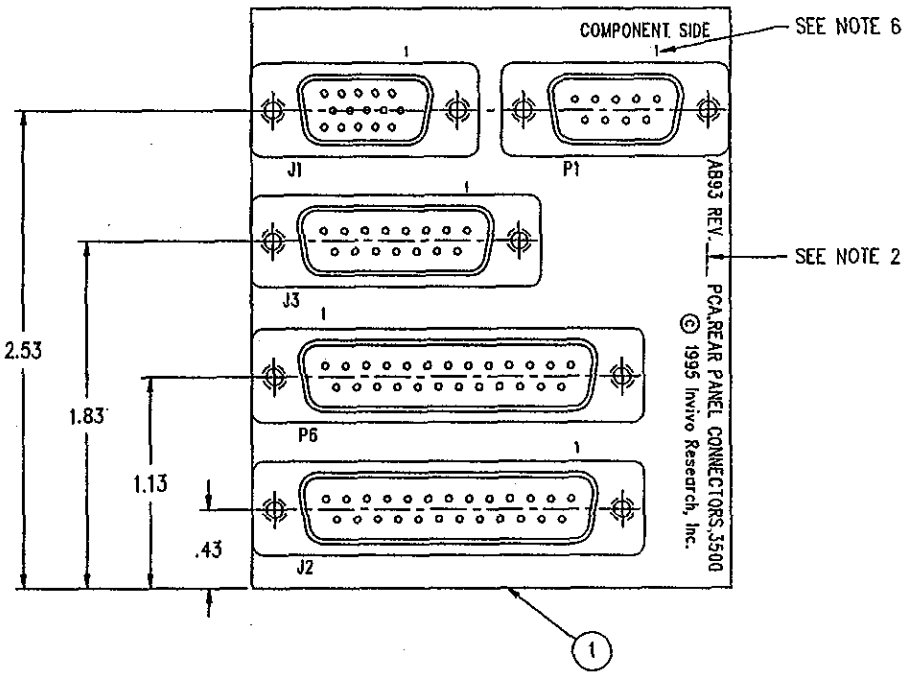
TITLE: SCHEMATIC: AB92
PATIENT CONNECTOR SENSOR 3500

CODE:	SIZE:	DRAWING NO:	REV:
	C	185C201	B

SCALE: NONE — SHEET: 1 OF 1







ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
P6	PA304	1	CONN, DB25 MALE, ST, THD INSERTS
P5	PA261	1	CONN, 15P, SR. HDR, RA, SHRD, .049
P4	PA276	1	CONN, 40P, DR. HDR, SHRD, .050 CTRS
P3	PA263	1	CONN, 10P, SR. HDR, RA, SHRD, .049
P2	PA294	1	CONN, 3P, SR.HDR, ST, SHRD, .098 CTRS
P1	PA279	1	CONN, DB9 RCPT, ST, P.C.MT, INSRTS
J3	PA281	1	CONN, DB15 RECPT, ST, P.C.MT, INSRT
J2	PA280	1	CONN, DB25 RCPT, ST, P.C.MT, INSRT
J1	PA282	1	CONN, DB15 VGA RCPT, ST, P.C.MT
JP1,JP2	PA49	2	HEADER, UNSH, SR, 2 PIN (.10)
R2	RX57	1	RES, 10K, .125, 1%, 100PPM, 1206
R1	RX23	1	RES, 1K+-5%, .125W, 200PPM, CHIP
D1,D2	DDX01	2	DIODE, SIGNAL, LEADLESS, 500mW
1	B165	1	PCB, REAR PANEL CONNECTORS, 3500 REV. B

NOTES

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING PERMANENT MARKER IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. COMPONENTS AT LOCATIONS D1, D2, JP1, JP2, R1, R2, P2, P3, P4, AND P5 ARE TO BE INSTALLED ON THE SOLDER SIDE OF THE BOARD.
5. CONNECTOR FLANGES TO BE IN-LINE WITH EACH OTHER AND PARALLEL TO SURFACE OF P.C. BOARD WITHIN .030. INSURE CONNECTORS ARE PROPERLY SEATED TO SURFACE OF P.C. BOARD BEFORE SOLDERING.
6. REMOVE "1" ON SILKSCREEN AND ADD "1" ON RIGHT SIDE OF P1 AS SHOWN USING PERMANENT MARKER IN CONTRASTING COLOR.

REV.	DESCRIPTION	BY	DATE
D	PER ECN #5190	SR	05AUG96
C	PER ECN #4932	JRB	4/9/96
B	PER ECN #4925	JRB	4/1/96
A	RELEASED, ECN #4799	JRB	2/2/96

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.XX = ± ——
.XXX = ± ——
ANGLES = ± ——

DRAWN	SR	11/20/95
DESIGNED	SLN	6/16/94
CHECKED	SR	11/20/95
APPROVED	RL	11/20/95

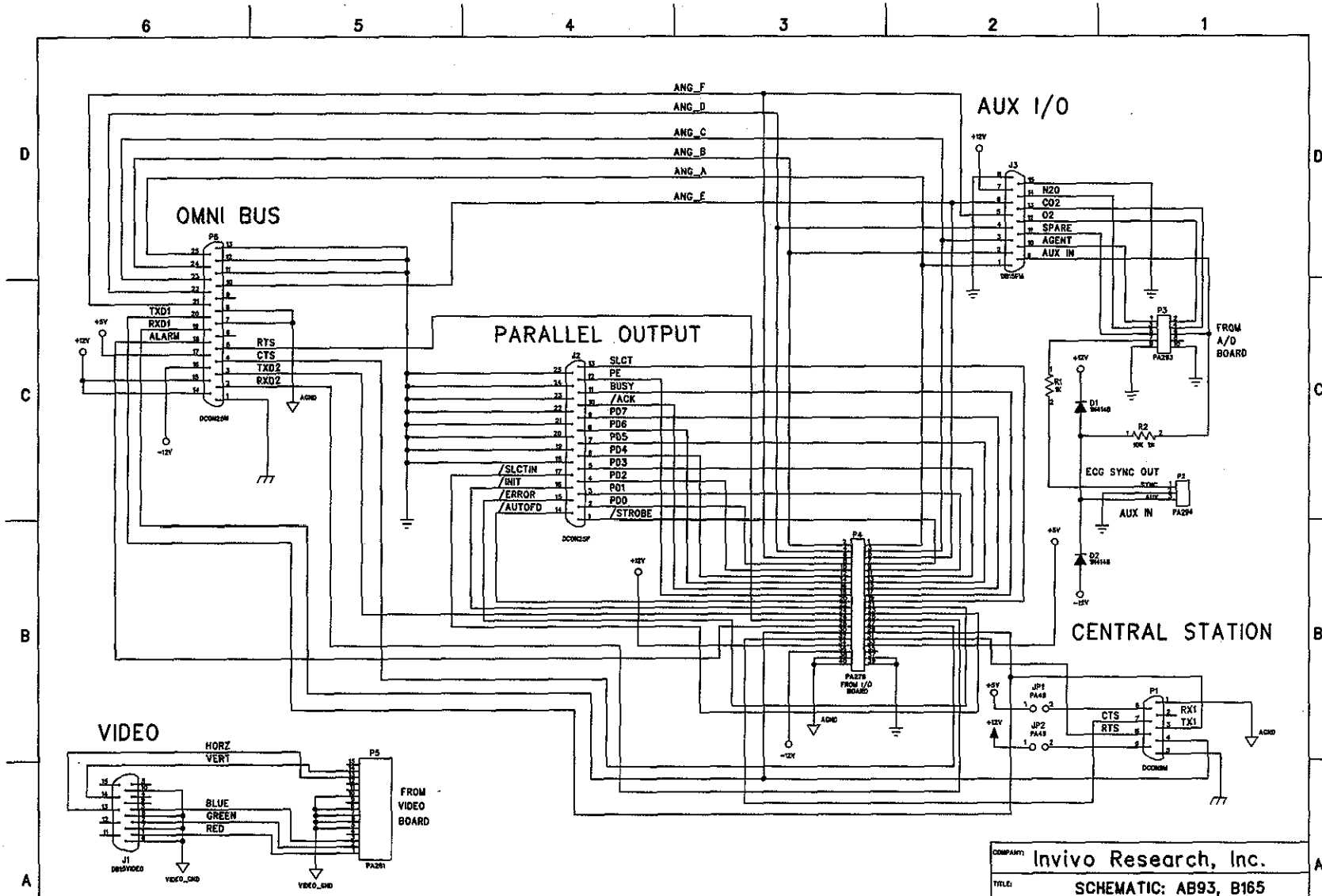
INCHES — THIRD ANGLE PROJECTION

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12601 RESEARCH PARKWAY., ORLANDO, FL 32826

TITLE ASSEMBLY: AB93
PCA, REAR PANEL CONNECTORS, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	C94C692	D

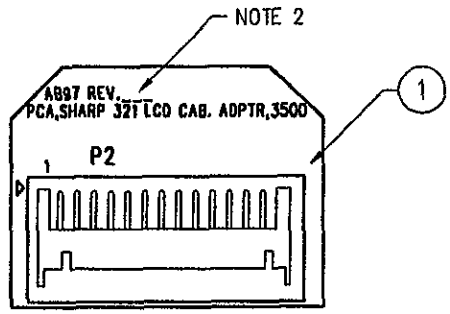


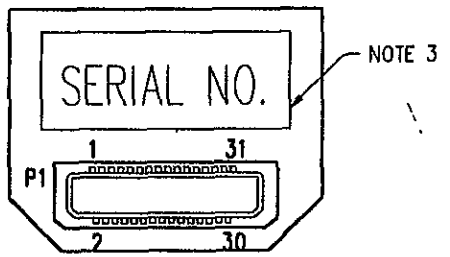
REV.	DESCRIPTION	BY	DATE
C	PER ECN # 5190	SR	5AUG96
B	PER ECN # 4932	JRB	4/9/96
A	RELEASED, ECN #4799	JRB	2/2/95

DRAWN: J.NABORS DATED: 10/25/95
CHECKED: DATED: 05AUG96
QUALITY CONTROL: DATED: 8/6/96
RELEASED: DATED: 8/6/96

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COMPANY: Invivo Research, Inc.
TITLE: SCHEMATIC: AB93, B165
PCA, REAR PANEL CONNECTORS, 3500
CODE: SIZE: C DRAWING NO: 185C202 REV: C
SCALE: NONE SHEET: 1 OF 1





NOTES:

1. WORKMANSHIP TO CONFORM TO IPC CLASS II REQUIREMENTS.
2. USING INDELIBLE INK IN CONTRASTING COLOR, PLACE CURRENT ASSEMBLY REV. IN SPACE PROVIDED.
3. BOARD REQUIRES SERIALIZED LABELING WITH THE FOLLOWING INFORMATION:
   UNIQUE SERIAL NO., ASSEMBLY P/N & CURRENT REV. LEVEL.
   PLACE SERIAL NUMBER LABEL IN THIS AREA-ORIENT AS SHOWN.
4. NUMBER OF LAYERS: 2

ITEM / REF. DES.	PART NO.	QTY.	DESCRIPTION
P2	PA290	1	CONN, 26P, DR, HDR, RA, SHRD, .079
P1	PA288	1	CONN, 31P, BD-BD, RCPT, .039, SMT
1	B160	1	PCB, SHARP 321 LCD DISPLAY CABLE ADPTR,3500, REV. B

REV.	DESCRIPTION	BY	DATE
B	PER ECN #4989	JRB	4/23/96
A	RELEASED PER ECN. #4878	SLC	28FEB96

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.XX = ±	DESIGNED	SLCASTEL 15SEP95
.XXX = ±	CHECKED	SB 4/24/96
ANGLES = ±	APPROVED	RJL 4/24/96

INCHES — THIRD ANGLE PROJECTION

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12601 RESEARCH PARKWAY, ORLANDO, FL 32826

TITLE
ASSEMBLY: AB97
PCA, SHARP 321 LCD DISPLAY, CABLE ADAPTER, 3500

CAD SCALE	SHEET	DWG. NO.	REV.
2 : 1	1 OF 1	C94B711	B